

RUSH UNIVERSITY



BULLETIN 1996-1998
RUSH-PRESBYTERIAN-ST. LUKE'S MEDICAL CENTER

Academic Calendar 1996-98

	X Courses	Y Courses	Z Courses
Orientation and Registration	September 12-13	September 4-6	
Fall Quarter 1996 Classes Begin	September 16	September 9	September 3
Classes End	November 22		
Examination Period	November 25-27		
Thanksgiving Holiday		November 28-29	November 28-29
Classes End		December 6	December 6
Examination Period		December 9-13	December 9-13
Winter Quarter 1997 Classes Begin	January 6	January 6	January 6
Classes End	March 14	March 14	March 14
Examination Period	March 17-21	March 17-21	March 17-21
Spring Quarter 1997 Classes Begin	March 31	March 31	March 31
Memorial Day Observed	May 26	May 26	May 26
Classes End	June 6	June 13	May 9
Examination Period	June 9-13	June 16-20	May 12-16
Commencement	June 14		
Summer Quarter 1997 Classes Begin	June 23		
Independence Day Holiday	July 4		
Classes End	August 27		
Examination Period	August 28-29		
Orientation and Registration	September 11-12	September 3-5	
Fall 1997 Quarter Classes Begin	September 15	September 8	September 2
Classes End	November 21		
Examination Period	November 24-26		
Thanksgiving Holiday		November 27-28	November 27-28
Classes End		December 5	December 5
Examination Period		December 8-12	December 8-12
Winter Quarter 1998 Classes Begin	January 5	January 5	January 5
Classes End	March 13	March 13	March 13
Examination Period	March 16-20	March 16-20	March 16-20
Spring Quarter 1998 Classes Begin	March 30	March 30	March 30
Memorial Day Observed	May 25	May 25	May 25
Classes End	June 5	June 12	May 8
Examination Period	June 8-12	June 15-19	May 11-15
Commencement	June 13		
Summer Quarter 1998 Classes Begin	June 22		
Independence Day Holiday	July 3		
Classes End	August 26		
Examination Period	August 27-28		
Orientation and Registration	September 10-11	September 9-11	
Fall Quarter 1998 Classes Begin	September 14	September 14	September 8
Classes End	November 20		
Examination Period	November 23-25		
Thanksgiving Holiday		November 26-27	November 26-27
Classes End		December 11	December 11
Examination Period		December 14-18	December 14-18
Clinical Quarters in Medicine begin:	September 23, 1996, January 6, March 31, June 30, September 22, 1997, January 5, March 30, July 6, September 28, 1998.		

X courses are offered by nursing and health sciences faculties

Y courses are offered by first-year medicine and graduate college faculties

Z courses are offered by the second-year medicine faculty

RUSH UNIVERSITY BULLETIN

1996 - 1998

Rush-Presbyterian-St. Luke's Medical Center

This Bulletin is published as a guide for the faculty and students of Rush University. The University reserves the right to add, amend, delete or deviate from any specifications herein at any time and to apply such changes to registered and accepted students.

Rush University
1653 W. Congress Parkway
Chicago, Illinois 60612

Rush University

Degrees in the Health Professions

1996-98

Rush Medical College	Doctor of Medicine	
College of Nursing	Bachelor of Science	
	Master of Science	Clinical Specialist and Practitioner Programs offered in these Departments
	Doctor of Nursing	
	Doctor of Nursing Science	Community Health Gerontology Maternal/Child Health Medical Psychiatry/Mental Health Surgical
College of Health Sciences	Bachelor of Science	Medical Technology Perfusion Technology
	Master of Science	Audiology Clinical Nutrition Health Systems Management Medical Physics Occupational Therapy Speech-Language Pathology
The Graduate College	Master of Science	Anatomical Sciences Pharmacology Radiological Science
	Doctor of Philosophy	Anatomical Sciences Biochemistry Immunology Medical Physics Neuroscience Pharmacology Physiology

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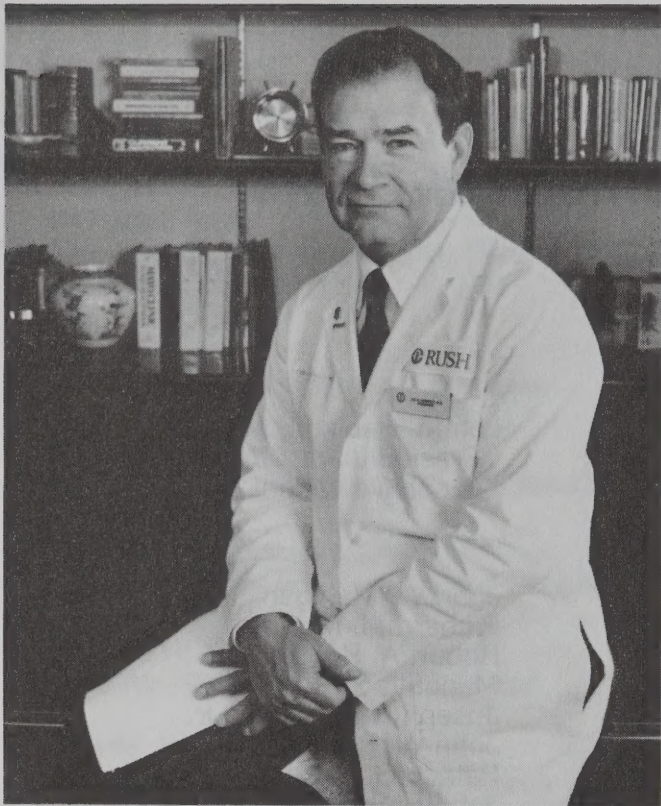
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President and Chief Executive Officer
Rush-Presbyterian-St. Luke's Medical Center

"Rush-Presbyterian-St.-Luke's is a major academic medical center on the national scene in a leadership position in many of its attributes and delivering the kind of care that is really second to none. It is within this environment of excellence and balanced emphasis on patient care, education, and scientific inquiry that future health professionals have the opportunity to grow in knowledge, understanding and skill."

GENERAL INFORMATION

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Medical Center Mission

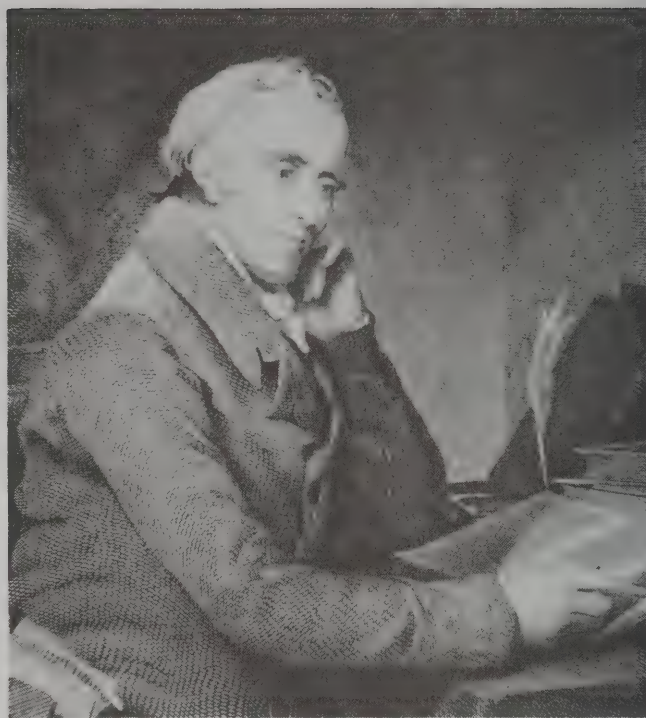
The mission of Rush-Presbyterian-St. Luke's Medical Center is

- to provide comprehensive, coordinated healthcare services to people in the Chicago metropolitan area and selected tertiary services to people throughout the nation;
- to educate and train health professionals to meet national needs as well as those of the Rush System for Health, with special emphasis on primary care practitioners;
- to advance healthcare knowledge by fostering basic, applied and clinical research which also serves to enhance clinical programs;
- to improve the West Loop and University Village communities of which the Medical Center is a member;
- to foster the individual growth and satisfaction of Medical Center employees and staff.

The Medical Center

Rush-Presbyterian-St. Luke's Medical Center is one of Chicago's oldest health care organizations. Its heritage extends back to 1837 when Rush Medical College was established. St. Luke's Hospital, founded in 1864, and Presbyterian Hospital, founded in 1883, merged in 1956 forming Presbyterian-St. Luke's Hospital. The subsequent incorporation of these pioneer institutions in 1969 created the present day Rush-Presbyterian-St. Luke's Medical Center, which today includes:

- Rush University, a health professions higher education institution that enrolled 1,470 students in 1995-96.
- Presbyterian-St. Luke's Hospital, with 872 beds, a major referral center that provides primary care to its immediate community and secondary and tertiary care to patients from across the country. The hospital admitted more than 29,528 patients and performed 21,646 operations the last fiscal year.
- The Johnston R. Bowman Health Center for the Elderly, a short-term rehabilitation facility with 131 beds and a national model for hospital-based geriatric care. The center admitted 2,098 patients last year.
- Managed care programs, through the provider network of Rush Prudential Health Plans,



Rush University is named for Dr. Benjamin Rush, signer of the Declaration of Independence and the "Father of Modern Psychiatry."

which includes Rush Prudential Partners, a pre-paid mixed-model HMO plan; Rush Prudential Affiliates, a pre-paid network-model HMO plan and Rush Prudential Plus, an insured point-of-service program.

- Industrial medicine programs, including Rush Occupational Health, which serves over 3,000 employers and 53,000 employees at five locations, and the Rush Corporate Health Center, which serves over 220 client companies at its downtown location.
- Home care programs, through expanded services of the Rush Home Care Network, serving patients in Chicago and the suburbs.
- ArcVentures, Inc., a wholly owned for-profit subsidiary of the Medical Center, has over 260 employees located in 12 offices throughout the country. ArcVentures develops and markets health care products and services, including home infusion therapy services, a retail pharmacy and equipment store, high risk monitoring for pregnant women, pharmaceutical and therapy services for HIV positive patients, medical board preparation classes, hospital billing and collection services and a clinical trials management organization. medical board preparation classes; (3) hospital billing and collection services; (4) retail and mail-order pharmacy services; and (5) home care services to women with high-risk pregnancies.

- Corporately affiliated with the Medical Center are Rush North Shore Medical Center in Skokie (284 beds); Rush Copley Medical Center in Aurora (142 beds); Illinois Masonic Medical Center in Chicago (365 beds); Lake Forest Hospital in Lake Forest (257 beds) and Riverside HealthCare in Kankakee (348 beds). The Medical Center has joint venture agreements with Holy Family Medical Center in Des Plaines, Oak Park Hospital in Oak Park and Westlake Community Hospital in Melrose Park.

The Medical Center is the hub of a comprehensive health care system - the Rush System for Health - serving some two million people in the greater Chicago area. Through its member hospitals, the System offers a full range of services, from office-based physician care for ambulatory patients to complex care for critically ill patients in hospital settings throughout the metropolitan area, as well as health promotion, preventive services, rehabilitation, home health care and hospice. Other System components include the Rush Corporate Health Center, Rush Occupational Health, the Rush Home Care Network and Rush Hospice Partners.

Academic Network

Beloit College, Beloit, Wisconsin
 Benedictine University, Lisle, Illinois
 Carleton College, Northfield, Minnesota
 Colorado College, Colorado Springs, Colorado
 Cornell College, Mount Vernon, Iowa
 DePauw University, Greencastle, Indiana
 Fisk University, Nashville, Tennessee
 Knox College, Galesburg, Illinois
 Lawrence University, Appleton, Wisconsin
 Macalester College, St. Paul, Minnesota
 Monmouth College, Monmouth, Illinois
 North Central College, Naperville, Illinois
 Ripon College, Ripon, Wisconsin
 Rosary College, River Forest, Illinois
 Wheaton College, Wheaton, Illinois

Rush University Mission

The purpose of Rush University is to educate students as practitioners, scientists, and teachers who will become leaders in advancing health care and to further the advancement of knowledge through research. As a major component of Rush-Presbyterian-St. Luke's Medical Center, the University integrates patient care, education, and research through the practitioner-teacher model. Rush University encourages growth of its students by committing itself to the pursuit of

excellence, to free inquiry, and to the highest intellectual and ethical standards.

The University

Rush University is the academic component of Rush-Presbyterian-St. Luke's Medical Center. Founded in 1972, the University has expanded from one college and fewer than 100 students to four colleges and over 1,400 students. It includes Rush Medical College, the College of Nursing, the College of Health Sciences, and The Graduate College.

Rush Medical College, chartered in 1837, opened officially on December 4, 1843, with 22 students enrolled in a 16-week course. During the first century of operation more than 10,000 physicians received their training at Rush Medical College. Rush Medical College was affiliated with The University of Chicago from 1898 until 1942, when the medical college temporarily suspended its educational program, though it continued its corporate existence. Its faculty continued undergraduate and graduate teaching of medicine and the biological sciences as members of the faculty of the University of Illinois. The charter of the medical college was reactivated in 1969 when it became part of the Medical Center, and, in 1971, it reopened with a class of 66 first-year students and 33 third-year students. First-year class size reached its projected maximum of 120 in 1976.

The College of Nursing represents a combined heritage dating back to the late nineteenth century when its first antecedent, the St. Luke's Hospital Training School of Nursing, opened in 1885 to offer diploma education to nurses. In 1903, the Presbyterian Hospital School of Nursing accepted its first students. From 1956 to 1968 nurses were taught at the merged Presbyterian-St. Luke's Hospital School of Nursing. Before the establishment of the College of Nursing in 1972, more than 7,000 nurses had graduated from these three schools. Today, approximately 200 baccalaureate, master's and doctoral nursing students graduate each year.

The College of Health Sciences, established in 1975, traces its origins to the School of Medical Technology sponsored by Presbyterian-St. Luke's Hospital from 1959 to 1972. This school was the second largest of its kind in the city of Chicago. During its operation, it provided a one-year professional internship program to more than 200 baccalaureate students in medical technology. Today, the College of Health Sciences offers six programs at the master's level in addition to bachelor's programs in medical technology and perfusion technology.

The Graduate College was established as a separate academic unit in January, 1981, having previously been organized as the Graduate School within the College of Health Sciences. The Graduate College is responsible for educational programs in the basic sciences and offers the master's degree in three disciplines and the doctoral degree in seven.

The Philosophy

The University was established in response to demands for a more effective and humane health care system that could supercede highly specialized, fragmented and often geographically inaccessible patient care services. The Rush System for Health, the conceptual framework adopted to address these problems, offers a prototype that could become a model for the delivery of health care in this country. This system is unique in many ways. The central concept is that the academic and care elements of health delivery systems must be united. The implementation of this concept differentiates Rush from many typical health universities. At the foundation of the University is an outstanding patient care setting. Presbyterian-St. Luke's Hospital is recognized as one of the top 20 hospitals in the country; its existence as a high quality patient care institution made the development of the University feasible. Most faculty and students have clinical responsibilities in this setting or in one of the institutions linked to Rush-Presbyterian-St. Luke's Medical Center. Therefore, faculty members function both as clinicians and as teachers. This combination ensures that faculty members bring up-to-date knowledge to the clinical setting and professional expertise to the classroom. Another distinctive feature of Rush University is its commitment to health maintenance and illness prevention. Traditional approaches to health care delivery are based on giving care to the seriously ill. Today, only about 12 percent of the population requires such care. At Rush one major focus in the classroom is on pathology and prevention of disease. This is supplemented by clinical experiences with inpatients and outpatients.

Programs of Study

Rush University confers the bachelor of science (B.S.), master of science (M.S.), doctor of nursing (N.D.), doctor of nursing science (D.N.Sc.), doctor of medicine (M.D.) and doctor of philosophy (Ph.D.) degrees. Within the undergraduate nursing program, an R.N. completion option meets the needs of registered nurses for a university education. All baccalaureate programs (nursing, medical technology and perfusion technology) begin in the junior year of study after completion of two years of course work at other accredited colleges or universities.

Master of science programs are offered by the College of Nursing and the College of Health Sciences. The College of Nursing has many specialties within the departments of community health, gerontology, medical, maternal child health, psychiatry/mental health, and surgical nursing. In the College of Health Sciences, a student may major in audiology, clinical nutrition, health systems management, occupational therapy, medical physics and speech-language pathology.

Doctoral programs include the doctor of nursing, doctor of nursing science, doctor of medicine and the doctor of philosophy. Students in The Graduate College may concentrate in anatomical sciences, biochemistry, immunology, medical physics, neuroscience, pharmacology, or physiology. A number of students enroll in concurrent M.D./Ph.D. programs.

Student Characteristics. In 1995 students ranged in age from 19 to 60, with undergraduates averaging 27 years; graduates, 32 years; and medical students, 26 years. Over 80 percent of the students lived in Illinois prior to entering Rush. The 1,470 students include 22 Hispanics, 141 Asian/Pacific Islanders, 71 black non-Hispanic and 43 international students.

Fall 1995 Enrollment	Men	Women	Total
Rush Medical College	263	235	498
College of Nursing	57	554	611
College of Health Sciences	44	167	211
The Graduate College	39	33	72
Unclassified	15	70	85
Total	417	1053	1470

Equal Opportunity Policy

Rush University encourages and gives full consideration to all applicants for admission and financial aid regardless of race, sex, religion, color, national origin, age or handicap. The University is committed to attracting candidates who will help to make the population of health care professionals more representative of the national population. The equal opportunity coordinator for academic affairs has been designated as the University's coordinator for the implementation of these policies. The equal opportunity coordinator may be contacted by telephone at (312) 942-7093 or by mail (Suite 128, Professional Building).

Policies and Procedures on Sexual and Other Harassment

In 1984 Rush University and Rush-Presbyterian-St. Luke's Medical Center were among the first academic and health care institutions in the country to adopt policies and procedures on Sexual and Other Harassment. The policies and procedures emphasize the Medical Center's longstanding institutional commitment to preventing harassment and focus on the internal resolution of any complaints. Under these policies and procedures, the more familiar category of sexual harassment as well as harassment related to race, color, sexual orientation, religion, national origin, ancestry, age, marital or parental status, and disability is prohibited. The provisions include protections for and prohibit retaliation against an individual making a complaint or supplying information about a complaint. They also incorporate protections for a person who considers himself or herself accused in bad faith.

Inquiries or complaints of harassment from students, residents, or faculty members will be handled through the offices of the equal opportunity coordinator for academic affairs or the director of the student counseling center. Every effort will be made to resolve a complaint informally, but procedures have been established for formal consideration if that is necessary or preferred. Copies of the Policies and Procedures on Sexual and Other Harassment are available from the Office of the Equal Opportunity Coordinator for Academic Affairs (Suite 128, Professional Building). If you have any questions regarding the matter of harassment, please get in touch with either the equal opportunity coordinator for academic affairs at (312) 942-7093 or the director of the student counseling center at (312) 942-3687.

Drug Free Campus and Workplace

Rush-Presbyterian-St. Luke's Medical Center is committed to achieving and maintaining a drug-free campus and workplace. The Medical Center has established a drug-free policy consistent with its commitment and goals. The policy states in part:

1. The illegal manufacture, distribution, dispensing, use, sale and/or possession of controlled substances on Medical Center property or while performing Medical Center business is strictly prohibited. An employee or student engaged in any such conduct will be subject to discipline up to and including expulsion or termination. In addition, students and employees are subject to all applicable criminal penalties under local, state or Federal law for unlawful possession or distribution of illicit drugs and alcohol.
2. Within five days of the conviction, employees and students must report to the Medical Center any conviction for violation of a criminal drug statute occurring within the Medical Center.
3. The health risks associated with the use of illicit drugs and the abuse of alcohol are many and varied. Some drugs may cause psychological and physical dependence or addiction. Others attack the central nervous system, making the user dangerous to himself and others. In the extreme, they can result in convulsions, psychosis, coma and possible death.

An Employee Assistance Program is available for any employee experiencing problems from, among other things, drug or alcohol abuse or dependency. Use of the program can be made by contacting the Department of Social Services at extension 2-5358. Students may seek similar assistance through the Student Counseling Center by calling extension 2-1439.

4. This policy is a condition of employment which all employees accept by continuing to work here. It is also a condition of enrollment which all students accept by continuing to study here.

University Statement on Academic Honesty

As students and faculty of Rush University, we all belong to an academic community with high scholarly standards. Academic honesty is essential for maintaining the relationship of trust that is fundamental to the educational process. Academic dishonesty is a violation of one of the most basic ethical principles of an academic community and will result in sanctions imposed under the University's disciplinary system. A partial list of academically dishonest behaviors that would subject a student to disciplinary action include the following:

CHEATING: Using unauthorized material or unauthorized help from another person in any work submitted for academic credit.

FABRICATION: Inventing information or citations in an academic or clinical exercise.

FACILITATING ACADEMIC DISHONESTY: Providing unauthorized material or information to another person.

PLAGIARISM: Submitting the work of another person or persons as one's own without acknowledging the correct source.

UNAUTHORIZED EXAMINATION BEHAVIOR: Conversing with another person, passing or receiving material to or from another person, or temporarily leaving an examination site to visit an unauthorized site.

University Statement on Student Conduct

Rush University seeks to create a climate that encourages its members to act as responsible adults in an academic community. Generally, institutional disciplinary measures are invoked only in response to conduct that adversely affects the University/Medical Center's pursuit of its educational objectives and mission. Penalties may range from a warning to probation,

suspension, or expulsion from the University/Medical Center. A partial list of disruptive behaviors that would subject a student to disciplinary action includes the following:

1. All forms of academic dishonesty.
2. Obstruction or disruption of teaching, research, administration, or other University/Medical Center activities.
3. Theft of or damage to University/Medical Center property or the property of a member of the University/Medical Center community.
4. Physical abuse of any person or action that threatens or endangers the safety of others.
5. Misrepresentation, falsification, alteration, or misuse of University/Medical Center documents, records or identification.
6. Unauthorized use or entry of University/Medical Center facilities.
7. Conduct that is inconsistent with the ethical code of the profession the student is preparing to enter.
8. Unlawful use or possession of controlled substances.
9. Unlawful use or possession of firearms or other weapons.

Research

Research expenditures totaled more than \$30 million last year. The faculty of the University encourages investigation of both normal and disease processes and the distribution and delivery of health care services. The faculty believes that inquiry into these areas by students should be encouraged if they are to become practicing professionals who will continue to learn throughout their careers. All research studies conducted at Rush-Presbyterian-St. Luke's Medical Center are listed in a research report published biannually by the Office of Research Administration.

Accreditation

- Rush University is fully accredited by the North Central Association of Colleges and Schools, the regional accrediting association.
- Rush Medical College is accredited by the Liaison Committee on Medical Education of the American Medical Association and the Association of American Medical Colleges.
- Graduate medical education is accredited by the Accreditation Council of Graduate Medical Education.
- The College of Nursing is accredited by the National League for Nursing.
- The anesthesia nursing program is accredited by the Council on Accreditation of Educational Programs for Nurse Anesthesia.
- The clinical pastoral education (CPE) program is accredited by the Association for Clinical Pastoral Education.
- The dietetic internship is accredited by the American Dietetic Association.
- The health systems management program is accredited by the Accrediting Commission of Education for Health Services Administration.
- The medical technology program is accredited by the National Accrediting Agency for Clinical Laboratory Sciences .
- The occupational therapy program is accredited by the Accreditation Council for Occupational Therapy Education of the American Occupational Therapy Association.
- The perfusion technology program is accredited by The Accreditation Committee for Perfusion Education of the Commission on Accreditation for Allied Health Programs.
- The speech-language pathology program and the audiology program are accredited by the Educational Standards Board of the American Speech-Language-Hearing Association.

Authorization

- The State of Illinois Board of Higher Education has authorized all degree programs offered through Rush University.

Licenses

- Department of Public Health, State of Illinois
- Cook County Board of Health

Memberships

- North Central Association of Colleges and Schools
- Association of American Medical Colleges
- American Association of Colleges of Nursing
- Federation of Independent Illinois Colleges and Universities
- Association of Schools of Allied Health Professions
- Association Of University Programs in Health Administration
- National League for Nursing
- Association for Health Services Research
- American Hospital Association
- Illinois Hospital Association
- Voluntary Hospitals of America
- Metropolitan Chicago Health Care Council
- Blue Cross/Blue Shield Health Care Service Corporation



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Academic Computing Resources

The Academic Computing Resources (ACR) department provides educational computer resources to Rush University faculty, staff, and students. These resources include the Personal Computer (PC) and Computer-Assisted Instruction (CAI) Laboratories, computerized test grading and survey scanning support for new computer-assisted instruction projects, and student access to the Internet and electronic mail.

In the PC Laboratory users may use microcomputer software with ACR's PC and Macintosh computers, laser printers, and dot matrix printers. Users have access to the PC Lab seven days a week on a sign-up basis. Available software packages include: word processing, spreadsheet, database, statistical analysis, and graphics packages, software application tutorials, and the AMA-FREIDA database. An ACR staff member is available during lab hours to provide assistance. Computer diskettes, address labels, paper, and transparencies are provided at a reasonable cost. Instructors may reserve the PC lab as a classroom by contacting the ACR office.

The CAI laboratory contains PC compatibles and Macintosh computers and provides access to computer-assisted instruction programs. These programs are accessed by using videodisc and other CAI media. Also available is a review program for the National Boards Medical Exams. The CAI Lab is accessible 24 hours a day, seven days a week, on a first-come first-served basis. It may also be reserved for classroom use by instructors by contacting the ACR office.

Computerized test grading and course evaluation services are available to instructors. Printouts contain test and evaluation results and statistical analysis to determine question validity. In addition, ACR staff can help instructors develop custom-made survey forms to fit their needs.

ACR office staff provide designing, programming, and evaluating assistance to instructors developing computer-assisted instruction for student use. Staff also assist faculty in the location and delivery of applicable off-the-shelf instructional software.

The Academic Computing Resources offices are located in Academic Facility rooms 433 and 437. ACR's manager can be reached at 312-942-6832.

Academic Skills Center

The Academic Skills Center offers both individual and group learning assistance to Rush students and to other members of the Medical Center community. Learners may request formal assessments in time management, reading and

study skills, writing and test taking. An important focus of the center is the review and critique of term papers, theses and dissertations. Assistance is available to learners for whom English is a second language. We have available such assessment tools as the Study Behavior Inventory (SBI), the Learning and Study Skills Inventory (LASSI), the Test Anxiety Profile (TAP), the Nelson-Denny Reading Test and other instruments.

The center works closely with providers of other Rush University academic resources and serves as a contact point for referrals to these and to external learning assistance resources. Learners are encouraged to contact the center for help in finding content tutors. Contact with the Center is confidential and no information will be released to another person of any Rush University office or external agency without the prior consent of the client.

Individual consultation is available Monday through Friday between 9:00 a.m. and 3:00 p.m. for walk-ins. Appointments may also be arranged by telephone (942-3227). University faculty frequently refer student to the center. Group sessions may be arranged as needed and workshops on selected study methods may be presented if requested.

There is no charge for the services provided by the center.

Alumni Relations

The Office of Alumni Relations is located in the 1700 W. Van Buren Building. It has been established to provide a planned, coordinated program of service and activities of mutual interest and benefit to Rush University, the Medical Center, and all alumni.

Although Rush University, founded in 1972, is a relatively young institution, it has already conferred more than 5,600 degrees in the health professions since its inception, and this dynamic growth continues.

The objectives of the alumni relations office are to provide channels for alumni of Rush Medical College, the College of Nursing, the College of Health Sciences, The Graduate College and the House Staff to remain informed of current developments at the Medical Center; develop an active interest in and involvement with their alma mater; maintain contact with fellow alumni and faculty; take advantage of continuing education opportunities offered through Rush University; respond positively through both financial and philosophical support and promote and perpetuate the high standards of excellence in patient care, education and scientific advancement consistent with the objectives of Rush-Presbyterian-St. Luke's Medical Center.

Formally organized alumni associations exist for graduates of Rush Medical College, the College of Nursing, and the Department of Health Systems Management. As the numbers of alumni increase from the other programs, organizational efforts are being undertaken for them as well. For more information concerning membership in one of the existing alumni associations or services available through the alumni relations office, call 942-7165 (Medical College) or 942-7199 (Nursing, Health Sciences, Graduate Colleges).

Alumni Associations

Rush Medical College. The Alumni Association of Rush Medical College is an active organization dedicated to supporting the educational goals of the college. Purposes of the organization are to maintain communications between alumni and the college; to honor alumni who have given distinguished service to the profession of medicine and/or to their alma mater; to promote and encourage the highest standards of medical education; to assist the faculty and staff of the college in any way possible and to provide financial support for the operation of Rush Medical College.

Prior to its reactivation in 1969, Rush Medical College conferred 10,976 doctor of medicine degrees. Alumni and Trustees of the Medical Center were responsible for keeping active the original charter granted to the college by the State of Illinois in 1837. The alumni also maintained the Rush Medical College Library and made financial grants for postgraduate education during the college's inactive period. Rush alumni practice in all 50 states and in 11 foreign countries. Since the reactivation of Rush Medical College in 1969, Rush University has conferred more than 2,500 doctor of medicine degrees.

The Alumni Association is represented on the Board of Trustees of Rush-Presbyterian-St. Luke's Medical Center by two alumni who are elected annually, the president and immediate past-president of the Alumni Association.

College of Nursing. The Rush-Presbyterian-St. Luke's Nurses Alumni Association is an active organization with the following goals: to unite the graduates of Rush University College of Nursing, Presbyterian-St. Luke's Hospital School of Nursing, Presbyterian Hospital School of Nursing, and St. Luke's Hospital School of Nurses for mutual assistance, protection, and preservation of fellowship; to promote the professional and educational advancement of nursing; to provide financial assistance and offer networking advice to current students; and to support the interests of the Rush University programs in nursing.

All graduates of these schools of nursing are considered active members of the Alumni Association. Each year, graduates return at Homecoming to tour the facilities and to learn what is happening at the Medical Center. From 1887 through 1968 there were 7,221 graduates of the diploma programs of the various schools. Many of them have served with distinction around the world. Since the founding of the College of Nursing in 1972, Rush University has conferred over 3,500 nursing degrees.

Many alumni support the Rush University nursing programs financially through the Golden Lamp Society, which provides leadership gifts to the college.

College of Health Sciences. The Alumni Association of the Department of Health Systems Management program is dedicated to the following goals: to advance knowledge and techniques in the field of health systems management; to maintain interest in potential and enrolled students; to facilitate graduate participation in continuing education activities; to provide objective recommendations for the development of the program; to provide opportunities for graduates to share their work experiences with students and other alumni; to serve as a network for job search and career advancement.

The first class of ten students graduated in June, 1981. Since that time the Alumni Association has grown to 205 members. An annual meeting and reception is held in conjunction with the Health Systems Management National Invitational Symposium on Hospital and Health Affairs.

Rush Surgical Society. This society recognizes the many surgeons who have been trained at the Medical Center but who may not have been graduates of Rush Medical College. Members automatically include all past, present and future trainees and faculty who have participated in a surgical laboratory, surgical clinical program or both.

The society's purpose is to support the Medical Center by promoting educational, scientific, and social aspects relating to surgery.

Medical Society. An equivalent group was established in medicine called the Rush Internal Medicine Alumni Association. This society was officially launched in April 1987. The society's purpose is to facilitate contact and communication among former internal medicine house officers and to honor alumni who have given distinguished service to the profession of medicine.

Biomedical Communications

The Department of Biomedical Communications provides media production, audio/visual support, illustration, design and photographic services for patient care, education, research, administration and marketing. Offices are located on the fourth floor of the Academic Facility, suites 401 to 430.

The Rush Photo Group creates custom photographic prints, slides, and transparencies. They also provide computer enhanced image manipulation and photo retouching. The staff of professional photographers are available for location photography and clinical photography. They are also available for portrait photography. In addition to these services, the section provides complete photographic lab services including in-house color slide film processing and color print processing.

Illustration & Design creates visual material to facilitate communication of both simple and complex health care information. The staff of the section are skilled in providing both medical and general illustration services in a variety of techniques from pen & ink to computer graphics. They also provide graphic design services for brochures, newsletters, flyers, posters, corporate identity concepts and promotional campaigns. Presentation graphics for lectures, exhibits, or publication are also available such as full color computer generated slides or black and white graphs for publication and poster exhibits. The section also provides computer generated slide imaging services.

Media Services provides a wide variety of projection and technical support including: a/v equipment rental, conference/presentation support including video/computer data projection, video and audio tape editing and duplication, video and a/v equipment repair, and video satellite teleconferencing. They also provide video program scripting, development, and production. The section also operates the Communication Skills Training Center and the Rush Television Network including the Patient Information Network, Professional Education Network and the Surgical/Pathology Television System.

Bookstore

The Rush University Bookstore is a health sciences bookstore serving the needs of students, faculty and staff at Rush-Presbyterian-St. Luke's Medical Center. The bookstore stocks the required and recommended textbooks for courses offered at Rush University, as well as an assortment of reference and review books. Rush students and staff receive a 10percent discount

on stocked books when presenting an I.D. Special orders are handled by the bookstore and will generally be received in one to two weeks. The discount does not apply to special orders.

Lab coats and medical-surgical equipment may also be purchased in the bookstore. School supplies, greeting cards, and Rush insignia items are also available. The Rush University Bookstore is located on the ground level of the Academic Facility.

The Campus

The main campus of the University/Medical Center is located on the west side of Chicago not far from the Loop. The area surrounding the campus is undergoing much redevelopment. Of particular interest is the Chicago Technology Park, which incorporates biomedical research facilities and programs. New townhomes and condominiums have been built in Garibaldi Park, just east of the campus, and many new businesses are flourishing in the Taylor Street area. With other health care facilities in the Medical Center District---including the University of Illinois-West Campus, Cook County Hospital, Westside Veterans Administration Hospital, and Illinois State Psychiatric Institute---Rush is centrally and conveniently located. In 1989, The Inn at University Village, a hotel with Benjamin's restaurant, opened on a corner adjacent to the Medical Center.

The main campus now consists of 22 buildings. This includes facilities for achieving the goals of the Medical Center: patient care, education and research. The main campus also includes an indoor parking facility.

Most student activities take place in the Academic Facility and Schweppe-Sprague Hall. The Library of Rush University and the McCormick Learning Resource Center are in the Academic Facility, along with classrooms, laboratories, academic computing, specialized facilities, the Rush University Bookstore, cafeteria, and some administrative offices, including those for Rush Medical College. Schweppe-Sprague Hall houses student services personnel, classrooms, a student lounge and activity center, administrative offices for the College of Nursing and the College of Health Sciences, and other specialized facilities, such as the Student Counseling Center.

On campus housing for students includes studio, 1 bedroom and 2 bedroom apartments at Center Court Gardens, located just east of the Medical Center. Many students also live in private housing in the area surrounding the Medical Center.

Laboratories are located throughout the Medical Center complex but are principally found

in Jelke-Southcenter. Additional departmental laboratories are clocated in the Tech 2000 building located at 200 W. Harrison Street.

In addition to the main campus, Rush includes Rush North Shore Medical Center, located in Skokie, and Copley Memorial Hospital located in Aurora. Directly across the Eisenhower Expressway from the main campus is an office building for Rush Prudential Health Plans, finance, legal affairs, philanthropy and communication, the data center and other functions of the Medical Center.

Tennis courts and a running track are located on the main campus as well as an indoor parking facility.

The Office of Student Affairs distributes a campus map to new students and publishes a student handbook annually. The handbook includes a yellow pages section that provides locations and telephone numbers of persons, offices, departments and buildings of interest to students.

Counseling Services

Open all year, the Student Counseling Center provides professional counseling, at no charge to students, for a variety of concerns ranging from academic problems to issues of personal development. Students have sought help for test anxiety, insomnia, study difficulties, career questions, eating disorders, parenting concerns, general anxiety, depression, and marital and/or relationship problems. In addition to counseling of individuals and couples, the center offers group and workshop experiences. The center has offered support groups for male nursing students, first-year medical students, and students with compulsive eating problems; in addition, a workshop on assertiveness training for medical school clerkships has been offered.

The Student Counseling Center maintains strict standards of privacy and confidentiality. No information on an individual student is released to anyone, inside or outside of the University, without the prior consent of the student. No student contact with the Counseling Center becomes a part of any other University record.

The office is located on the eighth floor of Schweppe-Sprague Hall.

General Educational Resources

The Office of General Educational Resources (GER) is responsible for providing students, faculty and staff with a wide range of services necessary for carrying out both laboratory and classroom instruction. GER's management of the

spacious, flexible facilities located on the seventh floor of the Academic Facility enables it to meet multiple needs for educational space, equipment, and other support. In addition, GER manages the flexible classrooms located at the south end of the seventh floor and also operates the Quick Copy Center. The multidisciplinary laboratory complex consists of eight laboratory/classrooms, seven support rooms and a central core demonstration area. Within the area are the electron microscope facilities and a small dark-room for scientific use by faculty and students. GER staff offer cardiopulmonary resuscitation and basic life-support training for individuals and groups. The office is responsible for provision of microscopes and other scientific equipment for educational uses, including the microscope rental plan (see below).

The Quick Copy Center, located on the seventh floor of the Academic Facility, duplicates materials for educational purposes as well as general needs. A full range of services, including front and back copying, full color copying, electronic page formatting with graphics and typesetting, and multiple binding options are offered through the center. Special rates are available to students for note cooperatives and organizations. Personal work of over ten copies can be accommodated for faculty and students at a reasonable fee.

Students and faculty who have instructional needs which require special accommodations should check with the supervisor of general educational resources for assistance. GER space is routinely open 50 hours during the week for scheduled classes, noncurricular instructional activities and study. Teaching and learning aids, such as microscopes, can be made available upon request. Classroom space is usually open for study purposes from 5:00 p.m. to 8:00 a.m.

Microscopes. Students must have microscopes for medical technology, anatomy, and pathology courses. Medical technology atudents who do not own a microscope may rent one through Rush University (see Financial Affairs). A carrying case and an off-campus pass (valid for the duration of the rental period) are provided with each rental microscope. Medical students may place a breakage deposit on their microscope but rental is not required. Since students will be held responsible for microscope damage and loss, homeowner's or apartment insurance is recommended. GER provides lockers to store the microscopes and distributes major course syllabi and microscope slide sets to those lockers.

International Services

The Office of International Services, Located in room 417 of the Academic Facility, is available to service the needs of students, as well as other international visitors to the Medical Center. The office provides pre-arrival information to visitors, help in preparing visa applications and immigration paperwork, orientation on arrival, and educational, cultural, and social programming. The director acts as the Training Program Liaison to the Educational Commission for Foreign Medical Graduates (ECFMG) and is the campus contact for the Fulbright Scholar Program. Rush students, faculty or staff who plan study or work abroad experiences are asked to report these plans to our office.

Library of Rush University

The Library of Rush University, although the oldest health sciences library in Chicago, maintains an up-to-date clinical collection of books and journals that serve the entire University and Medical Center. Housed in an attractively furnished two-story area, the library has large easy chairs, carrels, and tables for studying or reading.

A staff of professional librarians and technical personnel is available to assist library users. Guided tours and an orientation to the library are available during registration periods and on request. The library schedules frequent classes for individuals and groups on InfoNET, which includes the library catalog and OVID. There are also InfoCONSULTS, customized, individualized or group instruction designed to meet user's specialized needs. The Library Guide describes library services, circulation periods of books and journals, and hours of operation.

Users are encouraged to browse the automated library catalog for information about books, journals, and audiovisuals. The catalog identifies items by subject, any word in the title, author, or year of publication. Information about the item---whether it is checked out or on the shelf, and where it is located in the library---is provided.

The library also offers OVID which contains all journal article references and abstracts from MEDLINE including the years 1966 to the present. The MEDLINE database indexes over 3400 journals, U.S. and international, in the fields of medicine, dentistry, public health, allied health, nursing, and veterinary medicine. Additional databases available in OVID include references

from the psychology, nursing, cancer, health administration and AIDS literature.

Reference librarians provide assistance in locating and obtaining information from numerous sources. They also search computerized data bases in medicine as well as related disciplines.

McCormick Learning Resource Center

The Chauncey and Marion Deering McCormick Learning Resource Center (MLRC) of the Library of Rush University is an audiovisual learning facility which houses an audiovisual media collection and provides on-site support equipment for its use. MLRC is designed to encourage independent study and self-enrichment. Seven rooms allow large and small group media viewing with either 1/2' VHS videocassette, 3/4' videocassette, videodisc, audiocassette, slide, or slide/audio-cassette. Two of the rooms are connected to the Rush Television Network, the Medical Center's closed-circuit television patient education system. In addition there are stations for individual videocassette viewing. A multimedia classroom seating 24 people is now available for use. MLRC staff are always available during service hours to help with equipment operation.

Primary purposes of the MLRC are to build the audiovisual media collection and provide services for the University Medical Center which include purchase, preview, rental, and interlibrary loan of audiovisuals. The media collection is accessible by the Library Information System (LIS), the joint Library/MLRC on-line catalog. All media in the collection have been previewed and recommended for purchase by faculty. All programs in the collection may be reserved in advance by faculty and students for use within MLRC or elsewhere in the Medical Center.

The MLRC provides complete media reference services. The staff assists faculty and students in locating commercially produced media for use within their courses. This service includes consultation with various computerized databases and compilation of customized media bibliographies from which faculty and students may select titles for preview.

MLRC provides free, portable electric typewriters and portable audiocassette recorders to students for overnight use at no charge.

MLRC staff will arrange individual and group orientations to departmental services upon request (call 312-942-6799). Additionally, MLRC sponsors periodic showings of recent films of general interest to health sciences professionals.

Student Affairs

The mission of the Rush University Office of Student Affairs is to provide an atmosphere that will enhance students' academic experience. The student affairs staff works closely with students, faculty and administration to identify areas of student need and to design and implement programs and policies to meet those needs. The office makes special attempts to sponsor social, multicultural, recreational and educational activities that include students from all programs within the University. The Office of Student Affairs is located in Schweppe-Sprague Hall, room 023.

Clubs and Organizations. The Office of Student Affairs is always interested in helping students establish new clubs and organizations in addition to informally advising the current organizations.

Some of the current organizations include: American Medical Student Association, Nursing Christian Fellowship, National Student Speech Language Hearing Association, Student National Medical Association, Student Nurses Association, and the Occupational Therapy Student Association. A complete description of these organizations is listed in the student handbook which is available from Student Affairs.

Student Activities. The Office of Student Affairs sponsors programs open to all Rush University students and faculty. The primary objective of these programs is to enhance the cocurricular life of the Rush student community. In the past the office has sponsored events including Oktoberfest, the Music Recital and Art Fair, Martin Luther King, Jr. Birthday Party, and Friday evening socials known as T.G.I.F's.

The staff in the Office of Student Affairs welcomes input and assistance from students in the planning and implementation of programming events. If you wish to become involved, please contact the Office of Student Affairs at (312) 942-6302.

Student Representation. Student representation is unique to each college. Class committee and Faculty Council representatives comprise the Student Council of Rush Medical College. The council's purposes are to increase communication among the four classes and to give students a combined, representative voice on issues that confront them. Elections for Student Council and several standing committees are held each spring and fall quarters.

The College of Nursing has student representation on various committees such as admissions and evaluation, curriculum, affirmative

action, educational resources, faculty resources and development, and faculty senate. Elections for these committees are held each fall quarter.

Students are elected to membership on the College Council in the College of Health Sciences and also serve on committees in individual programs. Students in The Graduate College elect two students to serve on The Graduate College Council.

Career Development. Each student is assigned an academic advisor who is a member of the faculty. The advisor is knowledgeable about the student's educational program and provides assistance in curriculum selection, academic progression, and professional and career development.

Within Rush Medical College, an assistant dean in the Office of Medical Student Programs has specific responsibility for providing counseling about specialty choice and application for postgraduate residency positions.

Each year, the Office of Student Affairs sponsors programs to acquaint undergraduate students with a variety of job opportunities available at health care institutions. Additionally, Student Affairs offers assistance in resume writing and interviewing techniques and maintains resource materials to aid students in their job search. The Office of Student Affairs acts as the resource center for undergraduate students. Biographical data and faculty recommendations are kept on file and sent out at the students' request.

Lockers. The University provides lockers for the storage of coats and books. New students receive locker assignments at orientation. Since the Medical Center assumes no responsibility for the loss of personal property from lockers, it is unwise to store valuables, such as purses or tape recorders, in the lockers. Additionally, students should be aware that all students share lockers. If any difficulties with a locker arise, contact the Office of Student Affairs.

Mailboxes. Campus mail is delivered to student mailboxes located on the seventh floor of the Academic Facility and in the Office of Student Affairs (SS 023). Since no United States mail is delivered to these mailboxes, arrangements should be made to have all personal mail sent to home addresses.

New students receive mailbox assignments at orientation and should check for mail daily because University personnel distribute dated material through this campus system. Since students are held responsible for meeting deadlines announced in the dated material, students who will be off campus for an extended

period of time should make arrangements to have a friend forward campus mail. The Office of Student Affairs is not responsible for mail that accumulates during a student's absence. Students may obtain interoffice mail envelopes from the Office of Student Affairs.

Recreation. Rush University students have the opportunity to utilize several facilities in the area for recreation, relaxation, and physical conditioning.

- A jogging track (approximately one-fifth of a mile) surrounds four outdoor tennis courts next to the Atrium Building on the corner of Ashland Avenue and Harrison Street.
- Rush University students may also use recreation facilities at the University of Illinois - Chicago. The south wing of the Circle Center and the Illini Center provide space for archery, table tennis, bowling, swimming, billiards, handball, racquetball, tennis, badminton, volleyball, weightlifting, target practice and jogging. Students presenting a valid Rush University identification card are eligible for admission at reduced rates. Schedules of the facilities, rates, and hours of operation are posted in the Office of Student Affairs at Rush University.

Housing. Resident students may live in the Center Court Gardens. All of these buildings are located within the Medical Center. Individual units range from single occupancy studios to two-bedroom apartments that can accommodate four students. When filled to capacity, current facilities meet the housing needs of 25 percent of the total student enrollment.

Application Process. Students applying for admission receive housing applications as part of the admission process. Returning students may request a housing application from the Office of Student Services, room 119, Schweppe-Sprague Hall.

Because on-campus housing is in great demand, the following set of priorities has been adopted by the Office of Student Services for assigning students to available units. Students in category number one receive the highest priority followed by those in category number two, etc.

1. Students who wish to retain their present University housing assignment for the following year.
2. Students who wish to change their present University housing assignment to a different unit for the following year.
3. Incoming undergraduate students from affiliated colleges.
4. Incoming undergraduate students from nonaffiliated colleges.
5. Incoming graduate and medical students who do not live in, and whose families do not live in, the Chicago metropolitan area.
6. Incoming graduate and medical students who live in, or whose families live in, the Chicago metropolitan area.
7. Returning graduate and medical students who live in, or whose families live in, the Chicago metropolitan area.

These priorities will be used as a guide by the Office of Student Services when assigning housing. Students must meet all established deadlines regarding the application process. A returning student living in University housing, for example, who fails to submit a housing application for the succeeding year by the published deadline will not retain his/her number one priority. In addition, other factors such as financial need, room availabilities or unique individual circumstances may be considered as exceptions. Thus, the Office of Student Services reserves the right to make exceptions to these priorities when extenuating circumstances exist.

As already stated, on-campus housing is in great demand. Consequently, to maximize available space the following configurations will be used in the assignment process:

Center Court Gardens	
Studio	One student
One Bedroom	One-two students
Two Bedroom	Two-four students

Notification of acceptance into University housing will be sent to each student assigned to on-campus housing. For students who wish to retain or change their housing assignments for the following year, notification will take place approximately April 15 each year. Entering students must receive an acceptance for admission before any housing notification will be sent. Notification to entering students will begin approximately May 1.

Lease and Deposit. A lease will accompany each letter of acceptance into University housing. The lease must be signed and returned with a security deposit of one month's rent. Failure to return the lease and the security deposit by the specified deadline will result in the loss of the housing assignment. A student who provides written notification of cancellation of the housing assignment two weeks prior to the beginning date of the lease will receive a 100 percent refund of the security deposit. Cancellations received after this time will be refunded if another student utilizes the available space from the beginning date of the contract. All inquiries regarding housing assignments should be directed to the Associate Dean, Student Services.

Rent is payable in equal quarterly installments. Students are billed for rent along with tuition and fees prior to the beginning of each quarter.

Consolidation Policy. In an effort to maximize the number of on-campus housing spaces available to Rush University students, some consolidation of tenants may occur. This consolidation policy will affect only those students who occupy an apartment by themselves that was originally leased to two or

more students. Such a situation can occur when a roommate has left University housing during the course of the academic year.

If consolidation is necessary, students involved will be informed in writing. At that time the student will have the following options: share an apartment with another student in any building who is also in need of a roommate; find a Rush University student roommate of his/her choice; have a roommate assigned from the available applications or pay the full rent of the apartment.

If the fourth option is chosen, the apartment will become a single accommodation only through the end of the current lease. If the student wishes to renew the lease, the student will have the option of remaining in the apartment with the understanding that he/she will receive a roommate or will be given an opportunity to move to another available apartment.

After all apartments have been consolidated, any available apartments will be offered to students desiring housing. If compatible roommates are not available, a unit may be rented as a single accommodation at the full rental rate of the unit only until the end of the lease. At such time it will revert to multiple occupancy. Again, the student will have the option of remaining in the apartment with the understanding that he/she will receive a roommate or will be given an opportunity to move to another available apartment.

Students should address questions concerning the application process, assignment process, or roommate selection to Dr. William Wagner (telephone 312-942-6796).



Photograph by Jean Clough

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Registration

Credit Hours. Rush University is on a quarter system. Each quarter is at least ten weeks in length. An examination period is provided at the end of each term, and most classes give a final examination during this time.

The quarter hour is the unit used by the College of Nursing, the College of Health Sciences and The Graduate College to determine credit for courses taken. As a general rule one quarter hour represents contact time of one lecture hour, two hours of small group discussion or three laboratory or clinical hours per week.

Course credits are not calculated for Rush Medical College students. However, the number of weeks of clinical experiences appears on the transcript of the academic record.

Registration Process. Each quarter a timetable of classes is published by the Office of the Registrar for the subsequent quarter. Classes are filled on a first-come, first served basis according to the following order of priority: continuing students, new students and unclassified students.

Required Signatures. Registration forms are processed only if the required signatures are obtained. Each student must obtain his/her advisor's signature. Registration for more than 16 credits for graduate nursing students or more than 17 hours for all others requires written permission from the program director. The nature of some course offerings may require the instructor's signature in addition.

Registration for Medical Students. Registration for preclinical studies is done administratively except for electives, including the minicourse series (BHV 473). Registration for clinical studies is done in the Office of Clinical Curriculum.

Confirmation of Registration. Registration is confirmed on a *Student Data Sheet* which includes courses in which the student is enrolled, billing, and financial aid information. Closed or canceled courses are posted in the registrar's office. No message appears on the data sheet if the student did not get all requested courses.

Completion of Registration. Registration is complete only when tuition and other charges for the quarter are paid or satisfactory arrangements for payment are made. Registration for subsequent quarters is denied to student not cleared by the bursar. Tuition is due on the first day of the quarter. (See section on Financial Affairs).

Late Preregistration Fee. Students in the College of Nursing registering after the posted registration period prior to the beginning of each quarter will incur a \$50 late registration fee. This is imposed following initial matriculation in a degree program within the College of Nursing. Also the program in Health Systems Management imposes a \$100 late registration fee.

Unclassified Students. Persons not admitted to a degree program, but wanting to enroll in a course may do so on one of two designated Unclassified Registration forms obtained in the Office of the Registrar: The College of Nursing Unclassified Registration form, exclusively for nursing courses; and the generic Unclassified Registration form, for all other courses. The generic Unclassified Registration form requires the signature of the course instructor for approval to register. Course offered to first or second year medical students additionally require the signature of the Assistant Dean for Preclinical Curriculum. The College of Nursing Unclassified Registration form requires the signature's of an Associate Department Chairperson and the course instructor for approval to register. An instructor is not obligated to accept any unclassified student in his/her class, and students without appropriate background take courses at their own risk. Payment of tuition is required before the forms are processed. The bursar will charge tuition at the rate applied to graduate students. However, neither instructor approval nor payment assures a place in the class since students in degree programs have priority for enrollment in all courses. Therefore, unclassified student registration forms are processed only during the week immediately prior to the first day of classes. Notification is by mail. If an unclassified student cannot be accommodated in a class, a full refund of tuition will be mailed, usually within two weeks.

A student may accumulate no more than 12 quarter hours of academic credit as an unclassified student. These 12 hours, equivalent to a full-time one quarter course load, may be taken in one quarter or over a period of time. Registration as an unclassified student that results in more than the maximum number of hours (12) will be permitted if the dean (or his/her designate) of the college offering the course(s) has signed the registration form.

Credit earned as an unclassified student will not necessarily apply toward a Rush degree if the unclassified student is subsequently admitted to a degree program.

Pass/No Pass Option. The timetable indicates all courses that may be taken pass/no pass. One may register to take a course pass/no pass simply by putting an "x" in the P/N column on the registration form.

A student deciding to take a course pass/no pass after having initially registered should complete a *Pass/No Pass Option Form* available in the Office of the Registrar. This form may require the signature of the instructor as well as the advisor and must be submitted by the second Monday of the quarter. The form may also be used to revert to the letter grade option.

All medical students are graded honors (H), pass (P) or fail (F).

Graduate students in nursing may take no more than 20 percent of their total graduate course credits under the pass/no pass option. Therefore, if a nursing student has 55 quarter hours to earn a masters degree, he/she may earn 11 hours pass/no pass; the student who graduates with 125 quarter hours may take 25 hours pass/no pass. Thesis and dissertation hours (NSG 598 and 699), which are graded only pass/no pass, are in addition to the 20 percent limit.

Precandidacy research is graded P/N in The Graduate College. Divisional policies vary on the pass/no pass grading of other courses.

Independent Study. To register for independent study, students complete the form on the back of the registration form. This form identifies the title of the study to be posted on the student's transcript, the preceptor's name and office location and the number of credits for the study. The advisor's signature is required on both the front and back of the registration form.

Nursing students complete an *Independent Study Contract Form*, which is available in the Office of the Registrar. On this form the objectives of the study are defined, a plan to meet those objectives is described, etc. It should be completed and approved by the preceptor, department chairperson and the program director no later than the first day of the quarter in which the independent study is to be taken. The student's preceptor keeps the contract.

Health Systems Management students must register on the back of the registration form and also complete a separate form available in the Health Systems Management office (1700 W. Van Buren Building, 1st floor).

Drop/Add. The only way to change course registration is to complete a Drop/Add Form available in the Office of the Registrar. The official date of the drop/add action is the date that the drop/add form is processed by the Office of the Registrar. A course dropped during the first

week of the quarter will not appear on the student's transcript. After the first week one of the following policies apply:

Course Dropped in Weeks 2-5;

Grade of W

Course Dropped in Weeks 6-End:

Grade of WP, WF or WN

No course may be dropped after the last day of classes. No withdrawals are allowed during the final examination period. Students must obtain the appropriate advisor's signature before the form will be processed. Forms that do not have an advisor's signature will be returned to the student.

Medical students wishing to change their clinical schedules must contact the Office of Clinical Curriculum at least four weeks before the start of the scheduled clerkship.

Withdrawal from School and Leave of Absence. After matriculation in Rush University a student may not arbitrarily cease registration without notice. For both Withdrawal and Leave of Absence, a Petition for Clearance is required. Graduate students, in particular, are required by individual colleges programs to maintain continuous enrollment or risk administrative withdrawal due to unexplained non-registration.

Withdrawal. Withdrawal implies the permanent departure from the University without the immediate expectation of return. Graduate and Undergraduate students wanting to withdraw from the University must give formal notification by completing a Petition for Clearance form which requires them to obtain the signatures of specific university offices. The Petition for Clearance form is available from the Registrar's office, except for Nursing students, who should obtain the Clearance form specific to the College of Nursing. No withdrawals are allowed during the final examination period. Refunds are made only during the limits for refunds. Withdrawal is not allowed after the last class day of the quarter. (See Financial Affairs section.)

Leave of Absence. This is a temporary suspension of studies for which an approved time limit has been set and a specific date of return established. Leaves of absence are approved at the discretion of the student's college and are granted only to graduate or medical level students. Undergraduate students are not eligible for leaves of absence. The procedure for petitioning for approval of a leave of absence requires the student to complete the Petition for Clearance form and obtain all appropriate signatures. The completion of the Petition for Clearance makes the student eligible for a leave which is granted by the College. It is the student's responsibility to communicate directly

with their College regarding the disposition of their request for the leave. Normally, a petition for a leave of absence will only be accepted through the first week of the quarter for which the leave is desired. The clearance procedure assures that students do not obligate themselves for additional tuition, financial aid, and insurance. Insurance may be continued under certain conditions. Failure to complete the Petition for Clearance form will make the student ineligible for any refunds and obligate them for full quarter insurance charges.

Off-campus Concurrent Enrollment. Under special circumstances students may apply to take courses offered by another college or university. These courses are taken as integral parts of the student's curriculum, either replacing required Rush courses or fulfilling special career or disciplinary objectives. Completion of the *Concurrent Enrollment Form*, available from the Office of the Registrar, will authorize payment of tuition at the other institution. Students, often with the help of their advisors, make their own arrangements to take a course at another institution. This includes registration at that institution. They also register at Rush for the appropriate hours of credit and pay the Rush tuition rate. The grade for the course will be recorded on the Rush transcript when the student provides an official transcript from the other institution.

Auditing a Course. If one desires to sit for a course it may be done so only with the permission of the course director.. There is no official audit status. No record is kept and no registration form or fee is required. The course director is under no obligation to allow a person to audit and normally will not allow taking of course examinations. A non-registered student must leave the class if instructed to do so by the course director. An auditor may participate in class discussion only at the invitation of the course director. Auditing of laboratory or clinical course is prohibited. Persons who have audited a course may not apply for credit at a later time; grade credit for the course can only be earned by enrolling and paying for the course when it is offered.

Identification Card. Each student receives an identification card at matriculation. Each term the card is validated when satisfactory arrangements have been made for the payment of tuition and fees.

A valid ID card is needed for identification within the Medical Center complex, for use in the library, labs, LRC, bookstore, and for admission

to some school events. A clip is provided to display the card.

Lost or stolen identification cards may be replaced at the Office of the Registrar from 2:30 - 4:00 p.m. daily. There is a \$5.00 fee for this service.

Academic Records and Policies

Grade Point Average

The grade report and the transcript of the academic record shows a grade point average (GPA) for each quarter in which grade points were earned and shows a cumulative GPA for all work taken at Rush. The GPA is computed by dividing the number of earned grade points by the number of quarter hours of credit attempted for those courses. When a course is repeated the second grade only is computed in the GPA. No grade points are assigned for work taken on a pass/no pass basis and, therefore, are not computed in the grade point average. Grade point averages are not included for students in Rush Medical College since all courses are taken on an Honors/Pass/Fail system.

Repeated Courses. Some courses are allowed to be repeated such as research and clinical courses. These are usually indicated in the course description or the *Timetable of Courses*. All grades and grade points are counted in the grade point average for these courses. For all other course which are repeated, only the last grade is counted in the grade point average. Both takings of the course appear on the academic record and transcript.

Repeated Courses - Rush Medical College.

The official transcript carries the first taking of a repeated course until a second grade is recorded at which time the transcript shows only the second taking and grade earned. Both takings are recorded on the academic record for internal use within the medical college. Since all courses are taken H, P, F no grade point average is affected.

Grade Report. A quarterly grade report is mailed to each student's local address as soon as grades have been recorded each term. Grades are usually mailed within five working days of the end of the examination period. Grade results are not given by telephone nor given to students attempting to pick them up in person. A copy of the grade report is given to academic advisors. Grades are never released to parent, legal guardians, or spouses.

The quarterly grade report is the student's copy only, and it should not be accepted by an institution or agency in lieu of an official transcript.

Grading System

Grade	Quality	Grade Points
A	Excellent	4
B	Good	3
C	Satisfactory for Undergraduates but may not be acceptable at the graduate level	2
D	Minimal pass for undergraduate and may not be acceptable at the graduate level in the College of Health Sciences. Not used at the graduate level in the College of Nursing, The Graduate College or Health Systems Management	1
F	Failure	0
P	Passing	
N	Not Passing	
H	Honors - Rush Medical College only	
W	Withdrawal prior to midterm	
WP	Withdrawal passing after midterm	
WN/ WF	Withdrawal failing after midterm WN for courses taken pass/no pass	
K	Credit earned through proficiency examination	
NR	Grade not reported by instructor	
IP	Course is still in progress	
I	Incomplete	
CC	Course continues into the next quarter. Grade received at the end of the series is the grade for the entire course	
XX	Participation in an ungraded course or residency	

Rush Medical College uses honors (H), pass (P), and fail (F)

Academic Record. The permanent academic record is the student's official transcript that includes all course work taken at Rush University. External transcripts for medical students reflect the highest grade reported for each course at the time a transcript is requested. The academic record is maintained permanently in the Office of the Registrar.

Transcript Requests. Copies of the academic record may be obtained at no cost to the student or former student. These transcripts are released only with prior written consent of the student. Students may either complete a transcript request form or write the Office of the Registrar, Rush University, 1653 West Congress Parkway, Chicago, Illinois 60612. The letter must include a handwritten signature of the student. Transcripts will not be released if the student has an outstanding financial obligation to the University. Four working days should normally be allowed for processing.

Transcript requests by medical students to be used in support of residency applications should be made to the Office of Clinical Curriculum of the medical college rather than to the Office of the Registrar. A "dean's letter" is included with these requests.

Copies issued to students will be stamped in red ink "Issued to Student." All copies bear the signature of the registrar or his/her designate and the seal of Rush-Presbyterian-St. Luke's Medical Center.

Incomplete Grades. Students receiving a grade of incomplete (I) must enroll for the subsequent quarter to complete requirements for the course. A change of grade cannot occur unless the student has been enrolled. Students enrolling only to complete requirements for a course in which a grade of incomplete was given must register for an enrollment course in the appropriate college for zero credits. The registrar's office will assist the student with this process. These courses carry the nominal enrollment fee (see Financial Affairs section). See program descriptions for additional information pertaining to incomplete grades.

Dissertation and Thesis. Some programs require a master's thesis to meet requirements for the M.S. degree. Nursing students working for the D.N.Sc. degree and Ph.D. candidates in The Graduate College must complete a dissertation. Both are developed through faculty-guided independent research projects.

Review of a thesis or dissertation will follow the sequence of steps as described by each college including the prescribed preparation manual for each degree. Copies of these manuals are available in each graduate division and in the Library of Rush University. Each thesis or dissertation must be original and cannot have been used to meet the requirement of any other degree, either at Rush University or any other university.

Each student will have a committee whose role is to assure that the student's thesis or dissertation is of high quality and meets the

standards of the program and the university for originality, contribution to the field and scholarly presentation. The Committee is also to assure that the student is making satisfactory progress toward completion of the dissertation.

At or near the completion of the thesis or dissertation, each student will share with the academic community at large the knowledge that the student has developed through a public presentation. Students are responsible for posting announcements on institutional bulletin boards of the presentation that contain the title of the dissertation, the student's name, and the location, date and time at least two weeks prior to the presentation. This public presentation must precede the final approval of the dissertation by the Thesis/Dissertation Committee.

A copy of the thesis or dissertation must be approved by the director of the Library of Rush University, microfilmed by University Microfilms International, and a copy bound for permanent cataloging in the library.

Students must complete all requirements for the degree as well as all steps pertaining to the thesis or dissertation before May 15 in order to be eligible for participation in commencement for that year.

Commencement

Application for Graduation. No later than the second week of the quarter in which they expect to graduate, all degree candidates must submit a completed *Intent to Graduate* form to the Office of the Registrar. Only upon receipt of this form will the formal evaluation of the student's eligibility to graduate begin. This form also serves to indicate exactly how the graduate wants his/her name to appear on the diploma and in the commencement program. Students not receiving their diploma at the commencement ceremony will also indicate on the form to what address the diploma should be mailed.

Commencement Ceremony. Rush University commencement is held annually at the end of the spring quarter. The exact date for commencement is published in the academic calendar appearing in the timetable of classes and in the *Rush University Bulletin*. Students will be notified by the Office of Student Affairs concerning participation in the event. Students are expected to march in commencement exercises.

Information regarding degree requirements, deadlines and eligibility to participate may be obtained from program directors. Students whose academic plans change, making them ineligible to participate in the June ceremony, will be deleted from the commencement list for that

academic year. However, they are then eligible to participate the following June should they successfully meet degree requirements. During the ceremony, diplomas are given to students who have completed their programs, discharged their financial obligations to the Medical Center, and returned all library books and other University property. Students will be notified of all outstanding obligations, and the Office of the Registrar will encumber the diplomas and transcripts of students until these obligations are met.

Awarding of Degrees. Rush University degrees are granted on the Saturday of the quarter in which all degree requirements are completed. When degree requirements are met during the break following a quarter, the degree will be dated the end of the subsequent quarter. Degree requirements include all curricular and other program prerequisites, such as required courses, residency, minimum grade point average, cumulative quarter hours, etc. (See program descriptions for details). Before a degree may be granted, all grades of incomplete (I) must convert to final grades.

Outstanding financial and other Medical Center obligations have no effect on the awarding of degrees; however, the diploma, student transcript and other notification of a degree awarded will be withheld until these Medical Center obligations have been met.

Graduation Requirements. See program descriptions for specific requirements. Each candidate for the degree of D.N.Sc., Ph.D., or M.S. with thesis is required to submit a degree approval form to the Office of the Registrar after completing all academic requirements including dissertation defense and submission of the dissertation to the library for microfilming. Doctoral candidates may not participate in the commencement ceremony before submitting this form.

Dual Degree. (Undergraduates in nursing and medical technology) Some affiliated colleges award a bachelor's degree to students who have transferred to Rush University. Students receive the degree after they have met degree requirements of the affiliated college. Often those requirements have been modified slightly to accommodate the unique nature of the affiliated-Rush program. Questions regarding degree requirements and eligibility should be directed to the registrar of the affiliated college.

To receive a degree from the affiliated college, each student must authorize the registrar of Rush University to send an official transcript of Rush course work to the affiliated college.

Graduation Honors. Candidates for the bachelor of science degree who have demonstrated academic excellence are honored at commencement by the Rush University faculty. Those earning a 3.4 or better grade point average based on six quarters at Rush are awarded the bachelor of science *cum laude*; those with 3.6 or better, *magna cum laude*; those with 3.8 or better, *summa cum laude*. Only Rush University course work is calculated into the grade point average. Honors appear on the student's diploma and are announced during the commencement ceremony.

Prizes and Awards. Most of the following prizes and awards are given annually at college/departmental ceremonies in June immediately before the Rush University Commencement.

The Aesculapius Award to the outstanding resident-physician as voted by the medical students.

Alpha Omega Alpha Honor Medical Society. Undergraduate membership is extended to medical students who give promise of becoming leaders in the field of medicine. Graduating members of the Alpha Omega Alpha receive the *The Ramsey² Scholarship* which is funded by a grateful patient of Rush-Presbyterian-St. Luke's Medical Center.

The American Medical Women's Association Scholarship and Achievement Citations honoring women in the graduating class of Rush Medical College for outstanding scholarship and achievement.

The Arthur Dean Bevan Award to the graduating medical student who has demonstrated clinical and academic achievement in surgery.

The Cardiology Prize to the graduating medical student who has had the best performance in a cardiology elective course.

The Ciba-Geigy Award for outstanding community service by a sophomore medical student.

College of Health Sciences Dean's Award to an undergraduate and a graduate student for outstanding academic achievement.

The College of Nursing Dean's Award for superior academic achievement.

College of Nursing Teaching Excellence Award to the outstanding faculty members as selected by the graduating students and as selected by the faculty.

The Communication Disorders and Sciences Awards to the outstanding graduate students in audiology and in speech-language pathology as selected by the faculty.

The Daniel Brainard Award to the outstanding teacher in the basic sciences as voted by the medical students.

The David Peck Prize to the student who has made the greatest contribution to the Student National Medical Association.

The Dayton Ballis Humanities Fellowship to a Rush Medical College student for academic excellence in the humanities related to medicine.

The Department of Family Medicine Award to the graduating student who has demonstrated academic excellence in family medicine.

Department of Health Systems Management Award to the outstanding graduate student as selected by the faculty.

The Department of Pediatrics Award to the graduating student who has demonstrated outstanding achievement in pediatrics.

The Dianne Nora Clinical Excellence Award to the master's student who has demonstrated outstanding performance in clinical nursing courses.

The E. Virginia Pinney Award endowed in 1985, is given to the graduate student who has demonstrated outstanding leadership potential in the profession of dietetics.

The Freeland Scholarships for prelicensure nursing students who have demonstrated outstanding academic and clinical performance.

The GATE Pharmaceuticals' Outstanding Student Award to the graduating medical student who has excelled in the study of obstetrics and gynecology as demonstrated by excellence in scholarship and concern for patients.

The Gerontological Nursing Award to the undergraduate student who has demonstrated excellence in gerontological nursing.
Golden Lamp Society Award to the outstanding doctor of nursing science student for research and scholarship.

The Graduate College Award for excellence in research among students enrolled in The Graduate College.

The Graduate College Faculty Award to the outstanding teacher on the faculty as selected by the students.

The Harvey H. Grodzin, M.D. Memorial Pediatric Scholarship established by Dr. Grodzin's family and friends is given to a graduating medical student who has demonstrated excellence and who is embarking on a residency in pediatrics

The Henry M. Lyman Memorial Prize endowed in 1908, is given each year to a junior medical student for outstanding work as voted by the faculty.

The James A. Schoenberger Prize in Preventive Medicine for outstanding academic work in disease prevention and health promotion

The James B. Herrick Internal Medicine Award to the graduating student who has demonstrated outstanding achievement in internal medicine.

The James G. Clark, M.D./Ruth E. Schmidt, R.N., Endowment Fund for Medical Education Scholarship established by Miss Schmidt, a graduate of the Presbyterian Hospital School of Nursing in honor of her physician, Dr. James G. Clark, this scholarship recognizes students of Rush Medical College who have demonstrated clinical and academic excellence.

The Janet M. Glasgow Memorial Award of the American Medical Women's Association to the female student who graduates first in her class.

The John Giles Prize for outstanding undergraduate work in epidemiology and public health as selected by the Department of Preventive Medicine.

The June Polich Memorial Award for nursing excellence of a baccalaureate nurse in memory of June Kathryn Polich, a 1957 graduate of Presbyterian Hospital School of Nursing.

The Kellogg Scholarship Award to Doctor of Nursing Science Student for superior academic achievement.

The Lemmon Company Student Award to the graduating medical student who has excelled in the study of obstetrics and gynecology as demonstrated by excellence in scholarship and concern for patients.

The Linda L. Clemmings Award for outstanding performance in the community/family nurse practitioner program.

The Luther Christman Award from the Nursing Alumni Association to the prelicensure nursing student moving directly into post-baccalaureate studies who has demonstrated outstanding academic and clinical performance and leadership.

The Maynard M. Cohen Award to the medical student who has demonstrated excellent achievement in neuroscience research.

The Mary S. Oakley Gerontological Nursing Research Award for academic excellence and outstanding research.

The Nathan M. Freer Prize endowed in 1892, is given to the outstanding senior medical student as voted by the faculty.

The Nephrology Award from the Muehrcke Family Foundation to the medical student who has demonstrated outstanding achievement in the field of nephrology.

The Nursing Alumnae Clinical Excellence Award to the prelicensure nursing student who has consistently demonstrated outstanding clinical performance.

The Occupational Therapy Faculty Award to the outstanding graduate student who has demonstrated a balance of scholarship, humanitarianism, integrity and professional commitment as selected by the faculty.

The Sir William Osler Pathology Prize to the medical student who has demonstrated outstanding achievement in diagnostic or experimental pathology.

The Paul E. Carson Pharmacology Award to the student who has demonstrated excellence in pharmacology.

The Pharmacia & Upjohn Achievement Award to the senior medical student with the best research project.

The Phoenix Award to the outstanding physician-teacher as voted by the medical students.

Professional Service Awards to nursing students for significant contributions in the areas of community service and/or the professional nursing community.

The Rush-Presbyterian-St. Luke's Medical Staff Prize for Clinical Excellence awarded to the outstanding senior medical student as selected by the medical staff.

The Rush-Presbyterian-St. Luke's Nurses Alumni Association Awards for outstanding graduating nursing students who demonstrate academic and clinical excellence.

The Ruth E. Schmidt Endowment Fund for Nursing Education Award to the registered nurse completing the baccalaureate degree who has demonstrated potential for significant contributions to the profession of nursing.

The Samuel G. Taylor III Prize to the graduating student who has demonstrated excellent achievement in medical oncology,

The Sandoz Award to the graduating student who has demonstrated outstanding achievement in the field of psychiatry.

Sigma Theta Tau - The National Honor Society for Nursing - Gamma Phi Chapter membership is extended to undergraduate and graduate students who demonstrate outstanding academic achievement, leadership qualities, and commitment to the ideals and purposes of the profession.

Sigma Xi Outstanding Student Research Award
The local chapter of Sigma Xi, the National Research Society, sponsors Rush University Research week annually. The outstanding student research presentations are recognized by the society.

The Sir William Osler Pathology Prize to the medical student who has demonstrated outstanding achievement in diagnostic or experimental pathology.

The Society for Academic Emergency Medicine Award to the student who has demonstrated outstanding proficiency in emergency medicine as selected by the faculty.

The Theda L. Ashley Memorial Award to the graduate student who has demonstrated outstanding achievement in food systems management.

Writing Award for nursing students who have demonstrated outstanding scholarly and/or creative writing.

Student Records

Name and Address Change. The Office of the Registrar maintains the current official listing of student names and addresses for Rush University. It is the responsibility of the student to keep the Office of the Registrar informed of changes in this information. A name/address change form is available in the Office of the Registrar. This change is made on the University Information System.

Directory Information Policy. Certain information classified by Rush University as directory information may be disclosed to the public. These are items of directory information: student's full name, local address and phone number, date and place of birth, home town, major field of study, year in school or class, participation in officially recognized activities, dates of attendance, degrees and awards received, previous educational institutions attended, previous majors, previous degrees and dates earned.

Each fall quarter the Rush University Student Address Book is published for student, faculty, and staff use. It contains student names, local addresses and phone numbers, the student's college and classification. At the time of commencement exercises the following information may be released in public announcements: student's full name, degree and major, previous institution and degree(s), and home town.

Students may restrict the release of any item of information considered as directory information on a form provided in the Office of the Registrar, Schweppe-Sprague Hall, 101, by Friday of the first week of classes in each quarter.

Student Records Policy. The Family Educational Rights and Privacy Act of 1974 protects the privacy of current and former students enrolled in most educational institutions. Rush University has seven official student records. A student or former student may inspect and review these records after making an appointment with the appropriate office.

The records and their locations are as follows:

- official academic record: Transcript--Office of the Registrar, 101 Schweppe-Sprague Hall.
- registrar's folder: Contains admission application, transcripts from other schools, immunization record, registration information--Office of the Registrar, 101 Schweppe-Sprague Hall.

- dean's folder: (Rush Medical College) A complete academic file that contains grade reports, written evaluations of clinical work, curricular flow charts, copies of correspondence and of all material in the Registrar's folder--Office of Clinical Curriculum, 5 Academic Facility; (College of Nursing) Contains written evaluations of clinical work, curricular flow charts, grade reports--Office of the Program Directors, 14 Schweppe-Sprague Hall.
- department folder: Contains written evaluation of clinical work, curricular flow charts, grade report copies--Office of the Program Directors, clinical nutrition, medical physics, medical technology, occupational therapy, and speech and hearing sciences-- 14 Schweppe-Sprague Hall; religion, health and human values--7 Schweppe-Sprague Hall; health systems management-- 1 1700 West Van Buren Building; The Graduate College Admissions Office, 2 Kidston Building.
- financial affairs folder--Records showing all billing and payments, notes, and correspondence dealing with a student's finances--Office of Student Financial Affairs, 1 Schweppe-Sprague Hall.
- financial aid folder: All information concerning financial aid for the student--Office of Student Financial Aid, 1 Schweppe-Sprague Hall.
- placement recommendations: Contains letters of recommendation filed by faculty members at the request of the student--Office of Student Affairs, 023 Schweppe-Sprague.

Students may obtain copies of transcripts from the institution that holds the original records. Other portions of their records will be copied upon request. The request must be in writing and signed, must specifically identify the record desired and include the student's major, year, date of birth, and social security number. There is no charge for copies of the student transcript. Other reproductions cost 50 cents per page. The University honors requests providing there is no outstanding obligation to the Medical Center. Students within commuting distance may be asked to review the desired data in person.

Students may request that the University amend information in their records they believe to be inaccurate, misleading, or in violation of their privacy. If the University refuses to amend a record, the student may request a hearing to challenge that decision. A hearing will be

granted. Students may place in their educational records comments upon information in the records and/or state their grievances with a decision not to amend the record.

Administrators who maintain the records adhere to a policy of limited access to administrators and faculty of Rush University who have a need for information in order for their offices to function, to determine academic progress, or to designate award recipients. Other persons or organizations given access are those responsible for accrediting the institution, for providing the student with financial aid, for complying with a judicial court order, and for protecting the health or safety of students during an emergency.

Disclosure of any student's record to others not listed in these policies must have prior written consent of the student. Requests for information and letters of consent are kept with the records.

Immunizations

Students whose date-of-birth is 01/01/57 or later must show proof of immunization for measles, mumps, rubella, diphtheria and tetanus by the end of the first quarter of enrollment in a degree program in order to be eligible for continued enrollment. These are minimum requirements under The College Student Immunization Act of the State of Illinois. Additionally, students having direct patient contact must have immunization for hepatitis-B virus.

Human Investigation

Any project or study involving human subjects must have approval of the Medical Center Committee on Human Investigation. Studies in the community as well as within the Medical Center must have this approval. The Office of Research Administration handles all requests and has established the protocol for proper investigative procedures.

Institutional Animal Care and Use Committee

All investigators and teachers that use animals in scientific projects and in classes must submit their plans to the Institutional Animal Care and Use Committee (IACUC) for approval prior to carrying out the project or program. Members of the committee are appointed by the President and include representation from the community and from the student body. The director of the Comparative Research Center coordinates the work of the IACUC.

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Tuition and Fees

Tuition. Tuition and fees for the 1996-97 academic year are listed below. For estimates of other expenses, see the *Rush University Student Financial Aid Handbook*.

Medical students are charged for a maximum of four years of full time tuition. Students needing additional quarters to complete degree requirements will be charged the enrollment fee (see fees below). Although it may be possible for a medical student to complete all degree requirements prior to the spring quarter of his/her fourth year the spring tuition charge must be paid for a total of four years of tuition.

Fees. The following fees may be levied:

Enrollment Fee. Students in special programs are assessed \$250 per academic quarter. Students enrolled in a noncredit residency or academic enrichment program prior to receipt of their degree, must be registered for such a course and pay the enrollment fee in order to retain their student status. Any student having an outstanding incomplete after all other required coursework for the degree must enroll for no credit and pay the enrollment fee until the grade is satisfied. This fee also applies to graduate students who have completed all course work but have not had the dissertation accepted. Hospitalization or physician fees is not covered in this fee. (See Student Health Services Program for further information.)

Late Registration Fee. Students in the College of Nursing registering after the posted registration period each quarter will incur a \$50 late registration fee. This is imposed after initial matriculation in a degree program with the College of Nursing.

Application Fee. A nonrefundable application fee of \$25 is required of all applicants to offset the expense of processing the application, evaluating credentials, and maintaining a library of evaluation aids. This fee does not apply to any other charges such as tuition.

Enrollment Deposit. A \$150 enrollment deposit is required of health systems management students and \$100 is required for medical students prior to matriculation. All nursing students (including affiliated students) must deposit \$75 prior to matriculation. Other health sciences students submit a \$50 deposit. This guarantees students a place in the entering class. This deposit is nonrefundable and applies toward payment of the first quarter tuition.

Microscope Charges. Students enrolled in medical technology, microbiology, anatomy, and pathology courses must have microscopes. Third year medical technology student may ent scopes for \$125 per year or \$250 for the entire two-year period. These fees will be included in the fall quarter bills. First year medical students have use of a microscope upon payment of \$100 deposit. Any student who withdraws from the University or obtains a microscope from another

Tuition	Program	Full Time Per Quarter	Per Year (four quarters unless indicated)	Part Time (1-11 cr) Per Q.H.
College of Nursing	Undergraduate	\$3,418	\$10,254 (3 qtrs)	\$300
	Graduate level	\$3,877	\$15,508	\$340
College of Health Sciences	Clinical Nutrition	\$3,770	\$15,080	\$340
	Comm. Disorders & Sci.	\$3,786	\$15,144	\$340
	Health Systems Mgt.	\$3,916	\$11,748 (3 qtrs)	\$340
	Medical Physics	\$3,900	\$15,600	\$340
	Medical Technology	\$3,162	\$9,486 (3 qtrs)	\$280
	Occupational Therapy	\$3,822	\$15,288	\$340
	Perfusion Technology	\$3,952	\$15,808	\$340
	Certificate programs (part-time only)			\$340
The Graduate College	All Programs	\$3,806	\$15,224	\$340
Rush Medical College	Years 1 & 2	\$7,956	\$23,868 (3 qtrs)	
	Years 3 & 4	\$5,967	\$23,868 (4 qtrs)	
Non-degree	Unclassified Students			\$340

source should notify the coordinator of General Educational Resources who will authorize the bursar to prorate monthly the rental fee or return the deposit if returned in good order. (See General Educational Resources in Campus Section.)

Returned Checks. If a student gives the University a check that is returned by the bank upon which it was drawn, marked “not sufficient funds”, “payment stopped”, or “account closed”, a \$10 charge will be assessed for each occurrence.

Payment for Tuition, Fees, and On-campus Housing

The following statement represents the payment policy for all Rush University students.

Payment for tuition, fees and on-campus housing or satisfactory arrangements for payment must be made with the Office of Student Financial Affairs before registration is complete. Students may not attend classes until after registration is complete. Any exception to this policy must be approved in writing by the vice president for academic resources.

Students have the responsibility to complete one or a combination of the following courses of action on or before the announced first day of classes each quarter:

1. Pay total tuition, fees, and on-campus housing charges for the quarter.
2. Complete a Deferred Payment Plan Contract. This plan requires that one-third tuition, all fees, and a \$15 service charge be paid on or before the first week of class. Additional payments of one-third are due on the fourth and eighth Mondays of the quarter. Contract forms are available in the Office of Student Financial Affairs.
3. Use the pending financial aid payment option. All students who have financial aid pending will be allowed to defer payment of that portion of tuition and fees that is covered by the anticipated aid. In order to use this option, students must have taken all steps required of them to apply for the aid (e.g., the application for a guaranteed student loan program must have been completed and submitted to the financial aid office). In order to avoid a late fee charge, students must

make arrangements for payments of that portion of tuition and fees not covered with pending aid by completing steps one or two above.

Those students who have not made satisfactory arrangements will be given notice by mail during the third week of classes that they are delinquent in their financial obligations to the University. The notification will inform the students that they have until Friday of the fourth week of classes to satisfy all such financial obligations. On Monday of the fifth week of classes, those students who have not made satisfactory arrangements will be charged a \$100 late payment fee.

At the end of the quarter, those students who still have outstanding balances with the University that are not covered by pending financial aid will receive neither grades nor transcripts; be dismissed from on-campus student housing; lose all University privileges and have their registration cancelled for the following quarter.

Third Party Billing

All unpaid accounts are billed to the student monthly. If the student will not be personally paying the account, it is his/her responsibility for forwarding any bills to the appropriate party as soon as possible. It is recommended that a student in this situation authorize the bursar to bill their parents, spouse, or other agent directly. *Third Party Billing* forms for this purpose are available in the Office of Student Financial Affairs, Schweppe-Sprague Hall room 101.

Refund Policy

Official withdrawal or dismissal from a course or from the University entitles a student to a refund of tuition according to the following schedule. No fees are refundable.

A student may receive a 100 percent refund if withdrawal occurs during the first calendar week in which the quarter begins. Otherwise, refunds will be made as follows:

Second week	80 percent refund
Third week	60 percent refund
Fourth week	40 percent refund
Fifth week	25 percent refund
After fifth week	no refund

Students attending Rush for the first time who withdraw during their first quarter are entitled to a pro-rata refund of tuition and fees through the sixth week of attendance.

Refunds will be shown as credits on the student's account unless the student requests a check for the amount of refund, less any amount still owed for other charges. Normally, checks are processed within two weeks. Students are not notified when the check is available in the Office of Student Financial Affairs.

Students wishing to appeal the published schedule of refunds must appeal in writing to: Associate Dean, Student Services, 1743 West Harrison, Room 119, Chicago, IL 60612.

Student Health Services Program

The University's health services program is designed to promote the health and well being of its student population and to protect the individual student from undue financial hardships that a medical emergency could cause. To accomplish this the University offers membership in two separate group insurance policies that fulfill its goal of student health maintenance and protection. Only students enrolled in degree programs at Rush qualify for membership in Rush University's insurance programs.

Comprehensive Major Medical Plan. The first plan is a comprehensive major medical plan underwritten by BlueCross BlueShield of Illinois. This plan covers most hospital and physician services and has a \$100 deductible per individual with a maximum of three family members meeting the deductible within the benefit period. Highlights of the entire plan are available from the Office of Student Financial Affairs located in 101 Schweppe-Sprague Hall.

1996-97 Rates for CMM Plan \$100 Deductible (3 per family)

<u>Coverage</u>	<u>Per Quarter</u>
Single	\$393
Single plus one	\$951
Family	\$1500

PPO Plus Plan. The second plan offered by the University is PPO (Participating Provider Option) Plus also underwritten by BlueCross BlueShield of Illinois. Under this plan you choose to receive care from any physician in the PPO Plus network. In the event of hospitalization savings result from the use of PPO Plus hospitals. The Office of Student Financial Affairs has the PPO Plus Directory of Participating Physicians for reference as well as the list of hospitals in the Illinois network.

1996-97 Rates for PPO Plus Plan \$100 Deductible (3 per family)

<u>Coverage</u>	<u>Per Quarter (Including Summer)</u>
Single	\$336
Single plus one	\$813
Family	\$1284

Students may continue either plan for an additional quarter when they are not enrolled such a summer quarter or the quarter after graduation.

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Financial Aid Determination

The financial aid programs at Rush University are provided to assist students who cannot otherwise afford to pay the full cost of education through their personal or family resources.

In general, financial need is the basic criterion for the awarding of funds by Rush University. Accordingly, students and their families will be expected to contribute toward educational expenses to the fullest extent possible. The level of the expected contributions is determined by using a standard set of criteria to analyze financial information provided by the students and their families.

The Office of Student Financial Aid staff is available to consult with students and parents on all matters regarding the financing of a Rush University education. Students and parents are welcomed and encouraged to make use of these services.

Financial Aid Awards

After evaluating the personal and family resources available to the student and taking into consideration awards from external sources, the Office of Student Financial Aid will award funds under the control of the University to students who have remaining unmet need. In varying quantities, a financial aid award may include grants, loans, and employment. In order to distribute the available funds in the most equitable manner, the Office of Student Financial Aid establishes a formula that designates the sequence in which funds are awarded to students and the maximum amount awarded under each program. The formula provides for a certain amount of loans and sometimes employment, before students are given consideration for grants. These formulas are applied consistently during any given year among all students at a given class level in a given college, as long as funds are available. Due to differences in the availability of funds from year to year and changes in eligibility requirements, the formulas are adjusted annually.

Financial Aid Process

Financial aid information is mailed to all newly accepted students of Rush University in the January preceeding the academic period of enrollment. The *Financial Aid Handbook* will contain specific financial aid policy and procedures. In addition, a need analysis form will be included, which must be completed prior to awarding of federal, state or institutional funds. The priority deadline for submission of materials is May 1st. Students must be enrolled at least half-time to receive financial aid. (Half-time is 6 hours or more per quarter for all programs except graduate nursing student who must be enrolled 5 hours or more per quarter). To receive assistance, all appropriate forms and materials must be on file.

Graduate and professional students should expect to receive the majority of assistance in the form of loans. Because of the limited institutional resources, financial aid awards may contain loans that accrue interest while the student is in school. Grant assistance is available, however, the funds are limited and the student must provide parent data and meet the institutional criteria for eligibility. Refer to the *Financial Aid Handbook* for details.

Undergraduate students who have not received a prior undergraduate degree are more likely to receive grant assistance through federal and state programs based on need. Undergraduate students obtaining a second degree must also provide parent data for grants and loans from the institution.

Employment is possible in a number of university areas, as well as in other departments of Rush-Presbyterian-St. Luke's Medical Center. Depending on a student's academic program, employment may be awarded as part of the financial aid package. It is the student's responsibility to obtain employment. The Office of Student Financial Aid maintains a job board as well as publishing new positons in the *Rush Reporter*, a publication for students.

A total of \$19.0 million in loans, grants and employment from federal, state and institutional financial aid programs was awared to Rush University students in 1995-96.

Satisfactory Academic Progress

In order to receive financial assistance from federal Title IV aid programs (Federal Stafford Student Loan, Federal Supplemental Educational Opportunity Grant, and Federal College Work Study), the student must be making satisfactory academic progress. This federal requirement is contained in section 497(e) of the Higher Education Act of 1965, as amended, and is meant to ensure that only those students who meet progress standards toward their degree objectives continue to receive federal financial assistance.

Rush University's policy regarding satisfactory academic progress follows. This policy is distinct from the academic policies of each program published elsewhere in this bulletin.

The maximum length of time for a Rush University student to complete degree requirements will be the length of time normally required for a student continuously enrolled on a

half-time basis to complete a specific program. Thus, students would not be eligible for federal assistance if enrolled for more than four years in a program that is normally completed in two years. Likewise, students would lose financial aid eligibility if enrolled for more than eight years in a program normally completed in four years. Students attending Rush University on a part-time basis must complete a minimum number of hours each year to determine eligibility for continued federal assistance. Further information on eligibility is available in the Office of Student Financial Aid.

Students who are denied financial assistance due to failure to make satisfactory academic progress may appeal to the director of their program. The director may reinstate the student's satisfactory academic standing by providing to the Office of Student Financial Aid a written statement explaining how the student will be making progress toward the degree.

Institutional Grant and Loan Funds

Grants

Listed below are the organizations and named endowments that provide scholarship assistance to Rush University students.

Orpheus William Barlow, M.D.
Broda O. Barnes, M.D.
Leonidas H. Berry, M.D., Fund for Excellence
Myrna G. and Benjamin Brindley
Alexander Brunschwig, M.D.
Carlson-Luckhart
Luther Christman
James G. Clark, M.D. and Ruth E. Schmidt, R.N.
Fred H. and Marie V. Burnek Decker
Catharine and R. Winfield Ellis-Philip N. Jones
Faculty Guild
Ethel Fanson
Clark W. Finnerud, M.D.
A. Clyde and Mae Freeland
Golden Lamp Society
Glore Nursing Endowment
Eunice Goebel Greeley
Jules and Eleanor Green
G. Howard Gottschalk, M.D.
Harvey H. Grodzin, M.D.
Henry and Antonia Hasterlik
Florence D. Hagenah
Marion E. Horween
Drs. Jones/Thompson/Ramsey/Kehoe
Philip N. Jones, M.D.
George M. Katzman, M.D.
John L. and Helen Kellogg
M. M. Kelly and C. D. Kelly
Earl Leimbacher, M.D.
George P. and Eva Lorraine
Foster G. McGaw
Sadie and Samuel L. Miller, M.D.
Joseph and Wendy Olk
Erma Page and Burton Lewis
Pedro Poma, M.D.
Rush Medical College
Rush Medical College Class of 1975
Rush-Presbyterian-St. Luke's Medical Center
 Medical Staff
 Nurses Alumni Association
 Woman's Board
Rush University
Robert Ryan, Jr., M.D.
Dr. Sylvio A. and Esther A. Sciarretta
Elizabeth Douglas Shorey
Smith Barney Nursing Scholarship
Emily Birnie Smith
Charles H. Solomon, M.D.

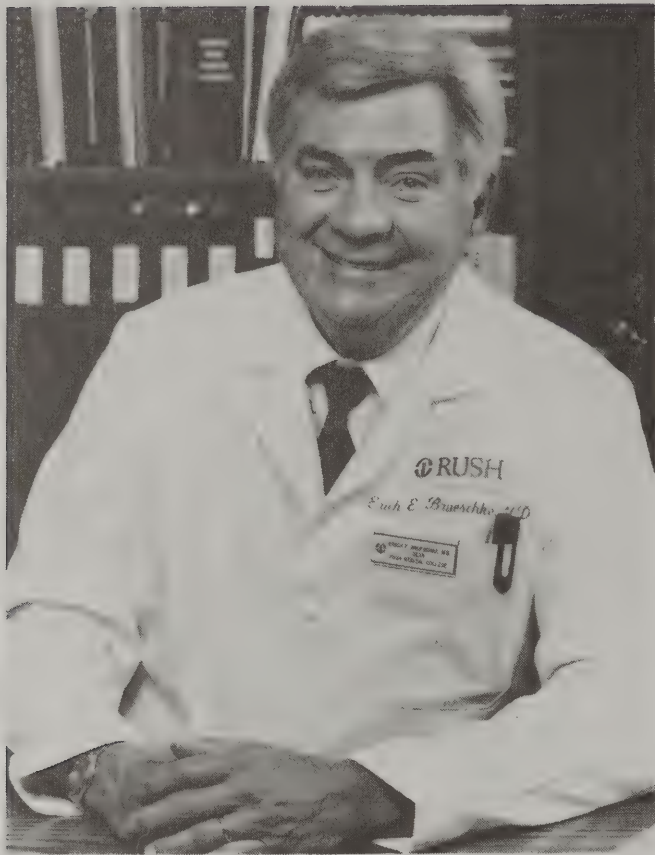
C. M. Swale
Homer Thomas Trust
A. Thomson, M.D. - M. Friedman
Washington Square Foundation

Loans

In addition, Rush University has loan funds available through resources provided by various donors and named loan programs.

Abbott Laboratories
Carl O. Almquist, M.D.
Aileen S. Andrew Foundation
Broda O. and Charlotte W. Barnes
Irving E. Beneveniste
G. Clare Bishop, M.D.
M. Irene Cavanaugh
Centel Corporation
Charity Hospital Association
Henry H. Everett, M.D.
Donald W. Fergusson
Fishkin Memorial
George Guibor, M.D.
Illinois State Medical Society
John Jacques, M.D.,
 and Lawrence Jacques, M.D.
Ruth E. Johnsen Memorial
Broor A. Johnson, M.D.
Margaret V. Krehbiel
John H. and Margaret F. Krehbiel Loan
 in memory of George Flanagan, M.D.
Esther and Has Lawrence, M.D.
Grace M. Marshall Educational Foundation
Dr. David Monash
Joseph J. Muenster, M.D.
Anne M. and Paul J. Patchen, M.D.
Frederick Henry Prince
Rush-Presbyterian-St. Luke's Medical
 Center Medical Staff
Rush-Presbyterian-St. Luke's Medical
 Center Woman's Board
Rush University
Henry Russe/Alumni Assistance
Heyworth and Catherine Sanford
Rev. Canon Savage Memorial
Simon M. Shubitz, M.D.
Searle Scholars Program
Procto C. Waldo
Jane Wheeler Warren
Vivian Weil
JoAnn and Seymour Weisberg, M.D.

RUSH MEDICAL COLLEGE



*Erich E. Brueschke, M.D.
Dean, Rush Medical College
Vice President, Medical Affairs*

"At Rush learning is an active process in which each student is given opportunities to achieve the highest potential. The interaction between student and faculty member mirrors the interaction between patient and physician: an open dialogue and mutual concern for problems. A Rush medical education is the first step in a lifetime pursuit of knowledge and achievement of the highest quality patient care."

Rush Medical College

Philosophy

The process of becoming a physician is unique for each student who enters Rush. Each brings to his/her medical school experience a distinct educational, psychological and social background. As students define career goals, each develops personal ways of coping with the demands imposed by the physician's role. The Rush Medical College curriculum encourages pursuit of individual interests by emphasizing a solid foundation in the basic sciences and by offering a wide range of elective opportunities in the Medical Center and in a network of affiliated and associated hospitals. Throughout the program, students are encouraged to develop habits of self-education and enthusiasm for the lifelong study of medicine according to specific interests and objectives. Upon matriculation, students are assigned academic advisors whose primary responsibilities are to provide guidance and serve as resources for students as they define professional goals, select courses, and deal with a variety of issues during their progress through medical school.

Long after students have taken their last medical school examinations, the sense of responsibility for the welfare of their patients remains the most important stimulus to maintaining the highest level of professional performance. The Rush faculty seeks to provide educational opportunities and to create an environment that will foster the ability to meet these responsibilities with competence and compassion.

Admission Requirements

Selection Process. Rush Medical College is strongly committed to the selection of individuals who will become vital members of the medical community as students, practitioners, educators, and researchers. Throughout the curriculum, emphasis is placed on the preparation of physicians who will function chiefly as medical practitioners and who will be committed to the delivery of quality health care to a variety of populations, including those that are now underserved.

Because Rush seeks to train physicians who will be committed to meeting society's health care needs, the Committee on Admissions seeks excellence in academic achievement and in noncognitive factors such as character, goals, personality, accomplishments, and experience.

High scholastic achievement is only a partial qualification for acceptance. The Committee on Admissions looks for individuals who exhibit social and intellectual maturity, personal integrity, motivation and concern. Rush also has technical standards for admission (available on request). Strong preference for admission is given to residents of Illinois.

Admission to Rush Medical College depends upon satisfactory completion of a minimum of 90 semester hours (135 quarter hours) of undergraduate study before matriculation. Applicants must also sit for the revised Medical College Admission Test (MCAT), which was given for the first time in April, 1991.

Rush requires all entering students to have successfully completed at least eight semester hours of physics; eight semester hours of biology, with emphasis in zoology; eight semester hours of inorganic chemistry; and eight semester hours of organic chemistry. In lieu of eight semester hours of organic chemistry, students may take four semester hours of organic chemistry and four semester hours of biochemistry. Survey courses in the premedical sciences will not fulfill these requirements. Courses in mathematics, social sciences, and English are strongly recommended. The committee suggests that comprehensive courses be selected that include study in the following areas: biology - molecular, cellular, developmental, and population; inorganic chemistry - properties of the elements, states of matter, chemical reaction, and aqueous solutions; organic chemistry - stereochemistry, covalent bonding, hydrocarbons, and organic compounds; physics - mechanics, electricity, wave characteristics, thermodynamics, nuclear structure, and optics.

Because the required courses provide the foundation upon which modern biological and medical sciences are built, the committee gives special attention to competence in these areas. The committee requires that all of the course work submitted in fulfillment of specific admissions requirements must be evaluated on the basis of a traditional grading system. Such a system must employ a range of numbers or letters to indicate the comparative level of performance. If the applicant has received a grade of pass/credit for any courses on the required list, he/she must have the instructor supply, in writing, a statement evaluating the student's performance in that course. Applicants

are advised to pursue subjects beyond the stated minimums if they have not done excellent work in the required courses.

Concurrent M.D./Ph.D. Program

Rush University offers students the opportunity for studies that lead to both M.D. and Ph.D. degrees. These programs are particularly suited for students who aspire to careers in academic medicine and research. They enable students to obtain intensive training in specialized areas of the medical sciences while completing their medical studies.

The curricula for students in a combined M.D./Ph.D. program vary widely depending on the individual's previous education, scope of scientific study, and personal interests. Students in concurrent programs must meet the full conditions and requirements of The Graduate College and Rush Medical College. However, course work leading to one degree may be acceptable as partial credit toward the formal requirements of the other degree. A properly coordinated program may afford a significant economy of time in completing studies toward both M.D. and Ph.D. degrees.

A student who enters Rush University with concurrent enrollment in a graduate program and the medical college will typically complete two years of basic science components of the medical college curriculum before becoming fully involved with requirements of the graduate program. Upon completion of the requirements for the Ph.D. degree, the student will return for the clinical portion of the medical program. Alternatives to this schedule are possible to enable students to develop programs that will most effectively satisfy their career objectives.

Ph.D. programs are offered in The Graduate College of Rush University in the following areas: anatomical sciences, biochemistry, immunology, medical physics, neurosciences, pharmacology, and physiology.

Curriculum

Organization. The four-year Rush curriculum provides an appropriate background for individuals with a diversity of professional career goals. The curriculum is based on establishing a solid foundation in the basic sciences and clinical medicine through a core of required preclinical and clinical courses. Students at Rush are

offered two parallel preclinical curricula; the Traditional Curriculum and the Alternative Curriculum. In addition, there is ample elective time for students to pursue individual interests.

First Year--Traditional Curriculum. The primary objective of the first year is to provide students with exposure to the vocabulary and the fundamental concepts upon which the clinical sciences are based. The first year is comprised of three quarters of basic science material organized by discipline, that emphasize the structure, function, and behavior of the normal person. The Traditional Curriculum Utilizes a variety of educational formats which include lecture, laboratory, small group discussions and workshops. In addition a preceptor experience, an introduction to interviewing, history taking, and the physical examination is offered in a unique series of three courses which continue into the second year.

At the time of publication this new series of courses is being fully integrated into the curriculum and course numbers have not yet been assigned. They are listed here for information.

Preceptorship Experience. This longitudinal experience is designed to provide students an opportunity to observe and interact with physicians and their patients in an outpatient/office setting. This includes visits to the offices of primary care physicians across all six quarters of the preclinical years. First year students are expected to have six such experiences.

Physical Diagnosis. This course will begin in the first quarter of the first year and continue through the preclinical years. The focus of the first year component will be coordinated with the preceptorship experience and will emphasize professional behavior and the normal physical examination. The second year component will be concerned with advanced examination techniques and procedures (such as blood drawing).

Interviewing and Communication. This course will begin in the first quarter of the first year and continue through the preclinical years. The focus within this course is on communication skills: the teaching formats will include use of standardized patients, role playing, video-taped histories and direct feedback from both patients and faculty.

Descriptions for the other courses listed below may be found in the section on Courses. The following courses are designated during the first year at the Medical Center:

Courses Taken in the First Year Traditional Curriculum

ANA 471, 472 Human Anatomy I, II
 ANA 451 Histology
 BCH 471, 472 2 Biochemistry I, II
 BHV 451 Fund. of Behavior
 BHV 452 Ethics & Law in Medicine
 BHV 453 Behav'r in the Life Cycle
 (includes 1 minicourse)
 PHY 451, 452 Physiology I, II
 NEU 451 Neurobiology
 PVM 511 Preventive Medicine I
 Preceptorship Experience, Physical Diagnosis,
 Interviewing and Communication I, II, III

Courses Taken in Second Year Traditional Curriculum. During the second year, students are concerned with the study of the causes and effects of disease and with therapeutics. The three introductory clinical studies courses continue to complement the course listed.

BHV 543 Observation & Communication
 IMM 501 Immunology
 MIC 451 Microbiology Concepts
 MED 501 Clin. Pathophysiology I
 PHR 501-3 Medical Pharmacology I, II, III
 PSY 501-3 Intro. to Psychopathology I, II, III
 PTH 501,-3 Pathology I, II, III
 PVM 511, 12 Preventive Medicine I, II
 Preceptorship Experience, Physical Diagnosis,
 Interviewing and Communication IV, V, VI

Alternative Curriculum for the First and Second Years. Rush Medical College has established an innovative preclinical program for twenty-four students in each entering class. This alternative curriculum provides beginning medical students more experience with clinical problems, emphasizes personal responsibility for learning and fosters the development of interpersonal skills. The program involves individual and group assignments.

The content for the two-year program is similar to that offered in the traditional curriculum, but the learning format is quite different. Each student is provided with specially designed "learning guidebooks" for each unit in the curriculum. The guidebooks will outline the basic science content to be learned, illustrate relevant problem-solving approaches and contain appropriate reference material and learning exercises.

Students are organized into study groups with six students in each group. Each group will meet formally twice a week for half a day with specially trained faculty who will facilitate student analysis of clinical problems and guide the students in addressing other learning objectives of the small group sessions. However, Faculty from each of the basic sciences are available to answer questions and otherwise discuss the subject matter. Access to laboratories and tutorials for specific objectives in the preclinical curriculum is also included. Learning examinations are provided for use at the student's discretion. The examinations used in the alternative curriculum are consistent with the goals of the program and include integration of the basic science disciplines with clinical practice and the enhancement of problem-solving skills.

Students meet with Traditional Curriculum Students in the trio of clinical studies courses which are threaded throughout the two years of Alternate Curriculum courses.

Courses Taken in the Alternate Curriculum.

ALT 451 Cellular & Molecular Biology
 ALT 464-6 Behavioral Science I, II, III
 ALT 481-2 Medical Ethics and the Law I, II
 ALT 452 Anatomical Sciences
 ALT 454 Physiology
 ALT 455 Intro. to Pharmacology
 ALT 471 Epidemiology
 ALT 531 Neurosciences
 ALT 540 General Pathology
 ALT 532 Psychopathology
 ALT 541-2 Pathology, Pathophysiology,
 and Pharmacology I, II
 Preceptorship Experience, Physical Diagnosis,
 Interviewing and Communication I-VI

While the faculty believe that all students can benefit from this learning format, the program should be of special interest to students who prefer self-initiated, active responsibility for learning, profit from the give and take of many small group discussions, and enjoy problem solving.

All students admitted to Rush Medical College are eligible for participation in the alternative curriculum. Since positions in the program are limited, it is anticipated that not all interested students will be offered a position. Failure to gain admission to the alternative program will in no way jeopardize a student's status in the traditional curriculum. Students who wish to be considered for the program may apply any time during the admissions process.

Third and Fourth Years. The curricula of the third and fourth years provide students with training in clinical skills, diagnosis, and patient management in a variety of patient care settings.

The clinical curriculum includes required core clerkships in family medicine, internal medicine, neurology, pediatrics, psychiatry, obstetrics/gynecology, surgery, and a required senior subinternship in medicine, family practice, or pediatrics totaling 60 weeks. In addition, 18 weeks of elective study in areas of special interest to each student is also required.

With few exceptions, the required core clerkships are taken at Rush-Presbyterian-St. Luke's Medical Center, Cook County Hospital, Illinois Masonic Hospital and Medical Center, or another Rush network institution. Eight of the 18 weeks of required elective work must be carried out at Rush-Presbyterian-St. Luke's Medical Center or in a Rush-sponsored elective at a network institution. Up to 10 weeks of additional elective study may be carried out at other approved institutions.

Core clerkships in family medicine, internal medicine, pediatrics, obstetrics/gynecology, psychiatry, and surgery are completed during the third year. Senior year core clerkships include neurology, senior surgery and a subinternship in internal medicine, family medicine, or pediatrics.

Though scheduling of other required core clerkships is somewhat flexible, students are encouraged to complete these clerkships early in order to make better use of elective options in the fourth year. Students participate in assignment of required core clerkships although the final decision concerning core and elective clerkship rotations rests with the office of the dean.

Academic Progression. Evaluation of progress at the medical college is an important part of the learning process. Course examinations are aimed at allowing both the students and the faculty to assess progress toward defined learning goals. The final result of evaluation in course work is recorded as honors, pass, or fail. At the end of each quarter or clinical period, evaluations are submitted to the office of the dean.

The Committee on Student Evaluation and Promotion (COSEP) is a standing committee of Rush Medical College. The committee determines when students have satisfactorily completed requirements for promotion and may require additional study by students who have not satisfactorily completed aspects of the medical college curriculum. It also recommends candidates for the degree of doctor of medicine to the Faculty Council and accepts the responsibility of recommending to the Faculty Council the dismissal of any student whose

academic performance, including noncognitive as well as cognitive aspects, is unacceptable in the judgment of the committee.

United States Medical Licensing Exam/National Board of Medical Examiners (USMLE/NBME) subtests are occasionally used by departments to evaluate student knowledge. Scores from these examinations are kept confidential and are not available to any other institution or agency without the prior written permission of the student. Students may review their complete academic record in the office of clinical curriculum on Tuesday through Friday afternoons or by appointment.

Rush uses a system of student anonymity for all written examinations in the preclinical curriculum. Performance in courses is known only to the student, his/her academic advisor, the course director for each course, and appropriate members of the Office of the Dean, provided that a minimum passing level of achievement has been demonstrated. Otherwise, the information is also presented to COSEP.

Ratings by clinical instructors and, in most instances, oral and written examinations form the basis of evaluations of student performance in clerkships and, therefore, also the basis of recommendations for residencies. At the time of application for postgraduate training, a letter of evaluation is written by the Office of Medical Student Programs. Prior to the composition of this letter, an individual conference is held with the student, and all pertinent factors for the letter of evaluation are assessed.

Academic Policies

(Additional policies are listed in the Academic Information section.)

Credit Hours. Rush University is on a quarter system. Each quarter is at least ten weeks in length. Rush Medical College assigns no credit hour value to its courses. Medical students are enrolled full time even when carrying a reduced course load. Additionally, the clinical portion of the curriculum deviates from the quarter system by specifying the dates and number of weeks of full-time study spent in each area.

Credit by Examination. A student who passes a proficiency examination at Rush University will earn academic credit toward the degree. Information that is posted on the transcript is the course prefix and number, title, and a grade of "K". A transcript guide that accompanies all transcripts issued by the office of the registrar explains that the K grade means credit was earned through proficiency examination.

Academic Difficulty. The following are policies concerning students in academic difficulty:

Students in Academic Difficulty. Course directors will, at the earliest possible time, notify the Office of the Dean of the college of any students having academic difficulty. The Office of Medical Student Programs will work with such students, their academic advisors, and with course directors to clarify the nature of the problem and to seek appropriate solutions. Students in academic difficulty should establish contact with the course director, their academic advisors, and appropriate members of the Office of the Dean to explore the factors relating to the student's academic difficulty.

Academic Probation. A student with significant academic deficiencies as determined by COSEP shall be considered on academic probation. Students placed on academic probation are thereby informed that there is serious concern about their academic performance and that they are subject to dismissal from the college should their unsatisfactory academic performance continue. Students shall be notified in writing why they have been placed on probation and what requirements must be met to be removed from probationary status. Students on probation may not register and receive credit toward the M.D. degree for courses (including clerkships) at other institutions without the consent of the Office of the Dean.

Automatic Probation. A student who has outstanding failures in courses scheduled for a total of 90 or more contact hours, who has a failure in a single required clerkship or who does not pass the United States Medical Licensing Examination (USMLE), Step I by November of the third year shall automatically be placed on academic probation.

Probation by COSEP. COSEP may place on academic probation any medical student who demonstrates deficiencies that COSEP, in the reasonable exercise of its discretion, determines to be significant.

Removal from Probation. A student shall remain on academic probation until he/she has made up all academic deficiencies and has met any other requirements established by COSEP for removal from probation.

Changes in Student Status. The following policies apply to students who are changing their status:

Scheduling First-Year Studies Over Two Years. Prior to the start of the spring quarter of the first year, a student may petition COSEP for permission to complete the requirements of the first year over a two-year period. A proposed schedule of courses, developed in consultation

with a member of the Office of Medical Student Programs, will be presented to COSEP as part of the student's petition. COSEP shall decide upon such petition and advise the student in writing of its decision.

Leave of Absence. The associate dean for medical student programs will decide upon each request for leave of absence and will determine the duration of the leave and the conditions, if any, for resuming status as a full- or part-time student. A student may not go on a leave of absence without first stating in writing to the dean his/her intent to return to the college to complete the requirements for the M.D. degree.

The dean will consult with COSEP insofar as possible before approving a leave of absence for a student with academic deficiencies. (See Academic Information section for an additional requirement.)

Withdrawal from the University. Withdrawal is the voluntary termination of enrollment by a student. A student who withdraws and subsequently seeks reinstatement must submit a written petition for reinstatement to the Committee on Admissions of the college, if withdrawal took place before the completion of the student's first quarter of enrollment. If the student withdrew subsequent to the first quarter of enrollment, the student must submit a written petition for reinstatement to be reviewed by COSEP. Recommendations by COSEP are then sent to the Dean.

A student who fails to register and enroll in courses according to the policies of the college will be considered to have withdrawn. A student withdrawing under this provision may submit a written petition for reinstatement to the dean. The dean shall determine whether special circumstances existed that justified the student's failure to register or whether the student's petition should be forwarded to the appropriate faculty committee as set forth in the above paragraph.

Suspension. Suspension is the administrative termination of the enrollment of a student for a specific period of time.

Dismissal. Dismissal is permanent administrative termination of the enrollment of a student.

Grounds for Dismissal. The following shall constitute grounds for academic dismissal from the college:

- Outstanding failures, in any combination, in the first or second years in courses whose total of scheduled instructional hours equals or is greater than 35 percent of the total scheduled instructional hours for the entire first or second year. (An outstanding failure is a failure which remains after a student has

not passed a course's single make-up examination or which remains because the student did not qualify to take the make-up examination.)

- A second failure in a given required core clerkship.
- A failure in a second required core clerkship even though one may have previously been made up.
- Unsatisfactory completion of a remedial program by a student on academic probation where satisfactory completion of such program was a requirement for continued enrollment.
- a determination by COSEP that a student is not fit to practice medicine. Fitness for the practice of medicine includes demonstrated ability to be a competent and effective physician and performance which reflects good moral character, a sense of responsibility, sound judgment, and the ability to master and properly apply subject matter.
- Failure after three attempts to pass the Step I of the United States Medical Licensure Examination shall constitute grounds for automatic dismissal.

Procedure for Dismissal When a student is subject to dismissal the following procedures will be followed.

COSEP Action. COSEP shall review the performance of a student in accordance with these rules and, where appropriate, may recommend the dismissal of a student. The chairperson of COSEP shall notify the student who is subject to a COSEP recommendation for dismissal of COSEP's action and of the student's opportunity to meet with COSEP before it submits its recommendation to the Faculty Council. If the student fails to request a meeting with COSEP within 14 days from his/her receipt of the chairperson's notice, the student shall have waived any right to such meeting. The chairperson of COSEP shall determine the procedures for conducting the meeting with the student and shall in his/her sole discretion determine whether any participant in the meeting may be represented by an attorney.

After meeting with the student, if such meeting is requested in a proper and timely manner, COSEP shall submit its recommendation in writing to the Faculty Council.

Faculty Council Action. Within a reasonable time following its receipt of COSEP's recommendation, the Faculty Council shall consider the recommendation. The vice chairperson of the council shall chair meetings of the council when the council is considering recommendations for the dismissal of a student and shall invite the student and the student's faculty advisor to attend the Faculty Council meeting during its consideration of the COSEP recommendation affecting the student. The Faculty Council may in its sole discretion conduct a part of its deliberations concerning such recommendation outside the presence of the student and his/her advisor. The vice chairperson of the Faculty Council shall determine the procedures for conducting its meeting with the student and shall in his/her sole discretion determine whether any participant in the meeting may be represented by an attorney. The Faculty Council shall submit its written recommendation together with COSEP's recommendation to the dean.

Dean's Action. The dean shall consider the recommendations of COSEP and the Faculty Council and shall make the final determination concerning the affected student's status in the college. The dean shall notify the student, COSEP, and the Faculty Council of his/her decision in the matter.

Examinations in a Course. The attainment of course goals by students should be evaluated by written examinations and/or other appropriate means. The course director will determine the number and format of examinations. Courses with more than 50 hours of scheduled instruction per quarter should include more than one examination or other evaluative exercise per quarter. Students should refer to the course director and course materials concerning those requirements (e.g., attendance).

Course Grades. All preclinical courses in the traditional curriculum use a uniform minimum pass level: a score of 70 percent or 1.5 standard deviations below the class mean, whichever is lower with the additional provision that any student with a score of less than 55 percent will be considered to have failed regardless of the mean pass level determined by the curve. A grade of "honors" may be given at the discretion of the course director to students whose performance falls within the top 15 percent of the class.

Examination Period. In the medical college, no preclinical classes are scheduled during the examination period; examinations in preclinical courses are scheduled by the assistant dean for preclinical curriculum.

Incomplete Grades. The grade of incomplete (I) is normally given only when circumstances beyond the control of the student prevent completion of course requirements and the student has received permission to defer completion of these unmet course requirements. The course director shall determine what work will be required to remove the incomplete and shall establish a specific time within which the student must complete such work. Upon completion of the unmet course requirements this grade will be replaced by the new grade.

In-Course Make-up Examinations. Students may be guided by the following policies concerning in-course make-up examinations:

Excused Absences. Students with valid reasons may request permission from the office of medical student programs to reschedule an examination. The decision to grant such permission will be made by the dean's office in consultation with the course director.

Unexcused Absences. A course director is not obligated to provide a make-up examination for an unexcused absence from an examination.

Make-up Examinations for Failed Courses in First and Second Years. A student receiving a failing grade at the completion of a course shall be given an opportunity to take a single make-up examination as a means of demonstrating his/her proficiency in the subject to rectify his/her failure. However, a student who fails a course with a score more than two standard deviations below the class mean will not be offered such a make-up examination. Further, a student may take make-up examinations in no more than two courses in any one quarter. If more than two courses are failed, the student, in consultation with his/her academic advisor, may choose which examinations to take. Make-up exams will be completed no later than the first week of the quarter following a course failure. Format, content, and passing grade for make-up exams will be determined by the course director. Make-up examinations will be scheduled by the dean's office in consultation with the appropriate course directors.

Status of Students with Course Failures. COSEP shall review the status of students who fail make-up examinations or who have outstanding course failures for which they did not qualify to take make-up examinations and shall consider options for remedial work. COSEP shall review the status of all students who fail a clinical clerkship.

At appropriate times during the academic year, as determined by the chairperson of COSEP in consultation with the associate dean for medical student programs, COSEP will review

the progress of each student who has failed a course. After such review, COSEP either shall establish requirements which a student must meet in order to resolve his/her deficiencies in academic performance or shall recommend dismissal.

No student shall be promoted from the second year to the third year until he/she satisfactorily completes all requirements of the first and second years. COSEP, in its discretion, may schedule second-year courses concurrently with make-up work for unsatisfactory first-year work, as it may consider appropriate for an individual student.

Remedial Programs for Students Failing Courses. Guidelines for remedial programs are as follows:

First and Second Years. COSEP shall establish requirements for remedial work for students with one or more outstanding course failures in the first or second year. Remedial work requirements shall be reasonably related to the seriousness of the student's deficiencies. Such requirements may include, but need not be limited to the following: Summer tutorial study with re-examination; participation in an approved summer course; retaking failed courses during the next academic year; and retaking all courses including those satisfactorily passed.

In developing requirements, COSEP will consider the needs of the individual student and will endeavor to develop a program that, if successfully completed, will strengthen the student's prospects for successfully completing the remainder of his/her college program. Students who have no outstanding failures at the end of an academic year, but who have had to take make-up examinations in courses whose total of scheduled instructional hours equals or exceeds 30 percent of the complete program of instruction for that entire academic year may be placed on academic probation, in which situation COSEP will establish the requirements which students must meet before they are able to proceed to the studies of the next academic year.

Third and Fourth Years. A failure in a required core clerkship must be made up in a manner prescribed by the course director in consultation with the assistant dean for clinical curriculum, approved by COSEP, and consistent with the reasons for the student's failure. Should a student be required to repeat all or part of the clinical rotation, effort should be made to have the student work with different supervisory and instructional staff. A student required to repeat clinical work in a required core clerkship should complete the failed course prior to beginning another core rotation. A student failing an elective clerkship must either repeat the elective

or, with the approval of the dean's office, complete an alternative elective.

Failure to Pass Step I of United States Medical Licensure Examination. All students must take Step I of the USMLE in June at the completion of their second year. Permission to defer taking this examination must be granted by the office of medical student programs. Students who do not pass USMLE Step I by November of their third year will be placed on probation and reviewed by COSEP. COSEP may require the student to defer part or all of his/her clinical program to provide sufficient time for preparation. Students must take USMLE Step I three of the first four times it is offered to the class. Students who fail the examination three times will be automatically dismissed.

Graduation Requirements. The following are prerequisites to the granting of the degree of doctor of medicine by Rush University:

- The level of achievement required by the faculty for the degree of doctor of medicine must be attained in a minimum of 35 months.
- Credit toward the M.D. degree may be granted to a student by the Office of the Dean for appropriate course work accomplished prior to matriculation at Rush Medical College.
- A minimum of 78 weeks of instruction at Rush Medical College is required for students entering at the third-year level from other medical schools. The Committee on Student Evaluation and Promotion may recommend additional weeks of instruction depending upon the progress made by any Rush Medical College student.
- Each student's progress in each year of the Rush Medical College curriculum will be evaluated by the Committee on Student Evaluation and Promotion, and additional study may be required in any year for students with academic difficulty.
- Students must pass all courses in the preclinical years before entering the clinical phase of the curriculum.
- Prior to graduation, students are required to pass Part I and complete Part II of the examinations offered by the National Board of Medical Examiners to be called Step I and Step II of the U.S. Medical Licensing Examination after May 1992.
- Students must pass all required clerkships and Step I of the U.S. Medical Licensing Examination and be scheduled for completion of all elective clerkship requirements by December 31 of the current year in order to participate in commencement ceremonies.

Policies Concerning Student Misconduct

The Committee on Student Judiciary Review is charged with investigating and adjudicating charges of student misconduct of a nonacademic nature, including but not limited to violation of commonly accepted ethical standards of an academic community, such as cheating and plagiarism; falsification of student records, transcripts, financial aid forms or applications; unlawful use or possession of controlled substances on the Medical Center campus; conviction of a crime deemed serious enough to render the student unfit to pursue his/her profession; or other conduct that is inconsistent with generally accepted standards of behavior within an academic community or the medical profession.

All charges of student misconduct of a nonacademic nature shall be presented to the associate dean for medical student programs. If in the opinion of the associate dean, the matter may be resolved without a hearing, an attempt may be made to do so.

The student charged with misconduct or the associate dean may at any time exercise the right to have the charges heard by the Committee on Student Judiciary Review. In every case, the associate dean will notify the complainant in writing by registered letter within 30 days of receiving the complaint as to whether the matter was resolved without a hearing or whether the matter was referred to the Committee on Student Judiciary Review. If a disposition requires more than 30 days, the associate dean will notify the complainant in writing every 30 days until the matter has reached a disposition.

If the complainant is dissatisfied with the resolution of a matter that has not been referred to the Committee on Student Judiciary Review for a hearing, he/she may request that the decision be reviewed by an ad hoc committee consisting of two faculty members and one student appointed by the dean. In order for a complainant to initiate a review of the associate dean's decision, the complainant must notify the associate dean in writing that he/she seeks a review, and the notification must reach the associate dean within 15 working days from the time the complainant received written notification of the associate dean's disposition.

Upon a timely request, the dean will constitute the Ad Hoc Committee within two weeks. Members of the Ad Hoc Committee may not simultaneously serve as members of the committee on Student Judiciary Review. The Ad Hoc Committee will convene to accept testimony (in person or in writing) from the complainant, the student charged, and the associate dean. The ad hoc Committee will only accept evidence that addresses the issue of whether the associate dean failed to consider certain relevant facts that would warrant a full hearing. In the case of such a review, the Ad Hoc Committee may reach one of two decisions by a simple majority vote: 1) endorsement of the associate dean's prior disposition or the matter or 2) a decision ordering that the Committee on Student Judiciary Review hear the matter in a full hearing.

The decision of the Ad Hoc Committee shall be in writing, shall contain a summary of the evidence and testimony upon which the decision is based, and shall be delivered to the student, the senior representative body of the college, and the dean. The senior representative body shall consider the committee's determination and any written exceptions to said determination submitted by the student, and shall render its recommendation adopting, rejecting or modifying, in whole or in part, the committee's conclusion. Copies of the senior representative body's recommendation shall be transmitted to the Committee on Student Judiciary Review, the student and the dean. The dean will then consider the matter and render a final, nonappealable decision with respect to the charges of misconduct.

Student Conduct and Academic Honesty

(Please refer to the Rush University policy statement in the General Information section, on page 14).

Academic Advisor Program

The Academic Advisor Program consists of specially selected faculty members for each class who provide counseling and guidance for cohorts of approximately fifteen students each throughout the four years of medical school. The advisors are kept informed of current policies, procedures and trends affecting students' participation in both curricular and noncurricular aspects of medical school by the director of the academic advisor program, who is responsible for program planning, coordination, and evaluation. The director is assisted by senior advisors, individuals chosen for their expertise and experience in the Academic Advisor Program. Advisors provide counseling in three interrelated areas: academic (regarding the acquisition of the

knowledge and skills for becoming a competent physician), personal (regarding the growth and development of the person), and professional (regarding the selection of a career and graduate training program for which the individual is best suited). Besides assisting each of their advisees through the various phases of medical school, the advisors assist in writing of the dean's letters, which is the summation of the student's progress while at Rush used in applying to graduate medical education (residency training) programs.

Rush Medical College Committees

Committees exist within the structure of Rush Medical College to assure the appropriate involvement of faculty and students in the various activities of the college. Except for the Rush Medical College Student Council, each committee includes representation from both faculty and students.

Faculty Council. The Faculty Council is the senior representative body within Rush Medical College. The membership includes nine professors, three associate professors, three assistant professors, three instructors or assistants, and one student from each class, each chosen by vote of the corresponding constituency.

Committee on Committees. The Committee on Committees has as its primary responsibility the nomination of individuals to serve on the various standing committees of the medical college. Sitting as the Committee on Dialogue, the committee is also responsible for dealing with grievances presented by members of the Rush Medical College community.

Student Council. The Student Council is the representative government for students of Rush Medical College and consists of six representatives from each of the four classes within the medical school. The council provides a mechanism to facilitate the exchange of information on matters affecting the student body.

The standing committees of Rush Medical College include:

Committee on Academic Freedom. This committee concerns itself with questions of academic freedom. It works closely with the Committee on Dialogue and the Faculty Council in resolving grievances involving questions of academic freedom.

Committee on Admissions. Members of this committee are responsible for recommending to

the dean students for admission to the medical college. The duties of the committee members include selecting those applicants who will be interviewed; interviewing candidates; choosing applicants who will be offered acceptances to the medical college; and reviewing criteria applied from medical student admissions to maintain academic excellence.

Committee on Affirmative Action. The Committee on Affirmative Action serves to advise the dean and the faculty regarding policies, procedures, and issues which affect the recruitment, retention, and promotion of minority and women faculty and students in the college. The committee works closely with the equal opportunity coordinator for academic affairs.

Curriculum Committee. The Curriculum Committee is responsible for the design and content of the curriculum. On the basis of its own surveys and the evaluations of the Committee on Educational Appraisal, this committee evaluates the need for and, as deemed appropriate, develops recommendations for curricular modification.

Committee on Educational Appraisal. The Committee on Educational Appraisal is responsible for evaluating the courses of Rush Medical College. The committee administers, with the assistance of each course director, and analyzes course, clerkship, and faculty assessments provided by students. An annual report is produced for each course within the medical college curriculum.

Committee on Educational Resources. The principal function of the Committee on Educational Resources is to evaluate the utilization, organization and effectiveness of the sections of the Center for Educational Resources as they relate to the faculty and students of the medical college.

Committee on Senior Faculty Appointments and Promotions. The function of the Committee on Senior Faculty Appointments and Promotions (COSFAP) is to review recommendations submitted by chairpersons for appointments or promotions of faculty members to academic ranks of indefinite terms in Rush Medical College. Recommendations for appointments or promotions are then submitted to the office of the dean for further action.

Committee on Student Affairs. The Committee on Student Affairs (COSA) is concerned with noncurricular needs of medical students. Its regular responsibilities include an annual evaluation of the effectiveness and adequacy of programs and services available to students, improvement of current programs, and initiation of new activities when their need is recognized. The committee works closely with the University office of student services.

Committee on Student Evaluation and Promotion. The Committee on Student Evaluation and Promotion (COSEP) is responsible for developing policies concerning student status, evaluation and promotion; reviewing the academic performance of medical college students; making recommendations to the Faculty Council and dean concerning promotion, graduation and dismissal of students; and determining requirements for remedial action for students who have failed medical college courses.

Committee on Student Judiciary Review. It is the responsibility of the Committee on Student Judiciary Review to develop and recommend to the Faculty Council policies and procedures which promote the maintenance of ethical and professional standards for Rush Medical College students and to investigate and adjudicate charges of student misconduct of a nonacademic nature including, but not limited to: violations of commonly accepted ethical standards of an academic community, such as cheating and plagiarism; falsification of student records, transcripts, financial aid forms, or applications; unlawful use or possession of controlled substances on the Medical Center campus; conviction of a crime deemed serious enough to render the student unfit to pursue his/her profession or other conduct which is inconsistent with generally accepted standards of behavior within an academic community or the medical profession. All charges of student misconduct of a nonacademic nature shall be presented to the associate dean for medical student programs by students or faculty. The committee shall submit its recommendation to the Faculty Council, which, in turn shall make a recommendation to the dean who will then render a final, nonappealable decision on the charges.

Student Research Opportunities

Students are encouraged to have some research experience while they are in medical school. The opportunities range from laboratory experiences in the biomedical sciences to clinical investigation and field work in epidemiology, preventive medicine, and primary care. Such research can be carried out during summers or during time allotted for elective experiences. The student's academic advisor and the office of medical student programs will assist in arranging for research experiences.

Continuing Medical Education

The office of continuing medical education supports the sponsorship of medical and health professions symposia, workshops, and conferences for practicing professionals. Students may register at reduced rates for some Rush-sponsored programs. The staff provides services to faculty and staff of the University and

Medical Center that include consultation in planning meetings, budget preparation and marketing, including strategy and brochure development, printing and advertising. A computerized registration system maintains attendee records, confirmation letters, and attendance lists. For each meeting, the office prepares name tags and certificates of completion.

All programs are supervised by an experienced meeting planner who directs the marketing activities, orders all supplies and audiovisual equipment, and is on site during the program to assure its smooth operation. After the program concludes, the meeting planner prepares a program evaluation, a complete financial report, and detailed marketing and registration summaries.

Information regarding services and future programs can be obtained by calling (312) 942-7119 or 8728.



COLLEGE OF NURSING



"At Rush-Presbyterian-St. Lukes Medical Center nursing sets a national standard for excellence in patient care. This is accomplished through the unique integration of academic functions and health care services resulting in innovative nursing care delivery systems, nationally recognized educational programs culminating in the preparation of clinical nursing scholars in specialized care disciplines, and research programs that contribute to the scientific basis of clinical and administrative practice in nursing."

*Kathleen Gainor Andreoli, D.S.N.,
The John L. and Helen Kellog Dean,
College of Nursing
Vice President, Nursing Affairs*

College of Nursing

Philosophy

Preamble. Rush University College of Nursing is committed to providing excellence in professional education for nurses. The education of students is facilitated by the unification of the academic and clinical practice components of the health care system. This unique integration stimulates excellence in education, practice, scholarly activities, and professional leadership by the faculty and the graduates of the College of Nursing.

Nursing. Nursing is a profession and discipline that generates and uses knowledge to maximize the health of humankind. Through scientific inquiry, knowledge is generated and disseminated to improve practice, enhance education, and influence the organization and delivery of health care. Through the synthesis and application of knowledge, nurses contribute autonomously and collaboratively with other professionals to achieve positive health outcomes. Nursing standards define client outcomes for which nurses are responsible, and the nursing profession's accountability to the public. Nursing services are an essential element across the spectrum of health care, including health promotion and disease prevention, health restoration, and health maintenance. Within an ethical framework nurses demonstrate compassion, advocacy, and cultural sensitivity for individuals and groups.

Health. Human health is a dynamic process, reflecting the interaction of biological, psychological, sociological, and belief systems within internal and external environments. Primary, secondary, and tertiary prevention of health related problems are essential for the optimal functioning of individuals across the life span.

Society. Nurses are prepared to meet and respond to the health and illness needs of society. The changing nature of societal needs requires knowledge and skills enabling effective individual and group interventions. Emphasis is given to special at risk populations with consideration given to diverse characteristics

such as culture, race, ethnic groups, gender, age, income, and functional abilities. Whether societal needs are met by the delivery of direct services, or indirect services through participation in the policy process, nursing actions are based on science and research. Central to the health of society is an understanding of world interdependence.

Education. Knowledge from the sciences, arts, and humanities is integral to education for professional nursing so that students understand and value the human experience. Nurse educators foster student growth by planning learning experiences in the primary, secondary, and tertiary settings where faculty practice. Scholarly inquiry, clinical judgement, life long learning, and creative leadership are essential for the profession, thus development of these qualities is fostered in students at all program levels. Learning is a shared responsibility between educator and learner. Syntactical learning prepares the nurse to develop individualized care for unique practice situations. Contextual learning promotes the systematic analysis of internal and external conditions influencing the discipline and practice of nursing. Inquiry learning fosters reflection, criticism, independence, and creativity. Through syntax, context, and inquiry students are prepared to meet current and future health care challenges.

Degree Offerings

Four degree offerings, Bachelor of Science (B.S.), Master of Science (M.S.), Doctor of Nursing (N.D.) and the Doctor of Nursing Science (D.N.Sc.) comprise the exit points in the curriculum continuum. These are the points at which a student may end his/her academic advancement or stop with the option of reentry to continue his/her academic growth in nursing. Movement from one exit level to the next is always contingent upon evidence of academic potential for success at higher levels of study. Academic progression is reviewed regularly and students are advised of the options available to them.

Entry Points. Several entry points are available, depending on the educational goals and academic background of the student. Five entry points are available, depending on the background of the applicant.

1. College student with ninety hours of college credit.
2. R.N. with a minimum of ninety hours of college credit.*
3. R.N. with a baccalaureate degree in a field other than nursing.*
4. R.N. with a baccalaureate degree with an upper division major in nursing.
5. R.N. with a master's degree in nursing.

Applicants from group 1 must apply for the B.S. exit.

Applicants from group 2 may apply to either the baccalaureate exit or for one of the graduate exits. Those not meeting graduate admissions standards may be acceptable for the baccalaureate program.

Applicants from groups 3 and 4 may apply directly for the M.S. degree, the N.D. degree or the D.N.Sc. degree programs.

Applicants from group 5 may apply for the N.D. or D.N.Sc.

Registered Nurse (R.N.) applicants who do not have a B.S.N. must take placement examinations to validate previous nursing course work. See groups indicated with an asterisk (*) above. Information regarding these examinations may be obtained from the Office of College Admissions Services.

Terminal objectives for each of the four degree points are displayed on the following pages.

Quarters of Entrance. Prelicensure students begin in either summer or fall quarters. RN/B.S. Completion students begin in the fall quarter. Students in the Master of Science (M.S.) and Doctor of Nursing (N.D.) begin in either the fall or spring quarters with the exception of Anesthesia Nursing students who begin in the summer. Doctor of Nursing Science students (D.N.Sc.) entering the summer option begin in the summer quarter. It is highly recommended the other D.N.Sc. students begin in the fall quarter.

Admission

Prelicensure Level (Bachelor of Science). Students may enter Rush at the junior level after completing a minimum of two years at another accredited college or university. An individual may attend either an approved postsecondary institution of his/her choice or one of 17 colleges and universities affiliated with Rush.

Students interested in attending an affiliated school are encouraged to submit applications to the affiliated colleges and universities soon after the beginning of their senior year in high school. Each college has its own entrance requirements. The student's academic progress will be monitored by both Rush and the health careers advisor on the affiliated college campus. Students meeting the objectives of the prehealth curriculum, obtaining the approval of the health careers advisor and filing all required documents, will move to Rush University to pursue the final two years of the program.

Transfer credit is not awarded for required course work in which the student earned less than a C grade. Physical education and technical skill courses are not accepted for transfer credit.

Program Prerequisites. Applicants from groups 1 through 3 must take course work that includes the following:

Natural Sciences #	24 quarter hours minimum
Social Sciences ##	20 quarter hours minimum
Humanities	12 quarter hours minimum
English Composition ###	2 courses
Introductory Statistics	1 course
College level mathematics	1 course

Required courses include inorganic and organic chemistry, human anatomy and physiology and microbiology

Required courses include psychology, sociology and growth and development.

Proficiency at Composition II level

Applicants must submit transcripts of all college work attempted and recommendations from three individuals who know the applicant well. Two recommendations must come from former teachers and one from the applicant's most recent employer, when applicable.

All materials of the application are taken into consideration when evaluating an applicant.

Graduate Nursing Levels of Study. Each applicant to graduate study should have earned a baccalaureate degree with a recognized upper division major. The majority of credit toward the degree should be earned through university level coursework. Previous nursing course work completed at other schools or at schools not offering an upper division major in nursing must be validated by examinations to assist in the evaluation of previous nursing coursework. Arrangements for these examinations are

managed by the Office of Student Support Services.

Programs of study developed by the student and his/her advisor will incorporate previous academic work and the requirements for the exit option selected by the student. Progression from one level of graduate study to another requires maintenance of stipulated academic standards.

Applicants to graduate study must submit transcripts of all college work attempted, and Graduate Record Examination (GRE) results. Registered nurses must submit evidence of licensure in at least one state or jurisdiction. All applicants must complete an interview with at least one faculty member and submit recommendations from three persons who can evaluate the individuals potential for success in graduate study. D.N.Sc. applicants must submit at least one recommendation from a person who has completed doctoral studies.

All materials submitted are taken into consideration when evaluating a student. The faculty may recommend an exit option different from the one requested based upon an evaluation of the applicant's potential for success in the curriculum.

Deadlines for Application. Current application deadlines for prelicensure and graduate nursing programs may be obtained by contacting the College Admissions Office. All application materials must be received by the indicated deadline. Applicants are encouraged to apply early in order to avoid missing deadlines due to missing documentation.

Specific graduate areas of concentration have pooled reviews for all completed applications due to limited enrollments. The College Admissions Office can provide current information regarding pooled review dates and requirements for each area of specialization.

Practice Experience Requirement for Admission to Specialization. Specific areas of concentration have R.N. practice requirements for admission to M.S., Post-M.S., or N.D. programs. The College Admissions Office has information on current practice requirements. Applicants with less than the required nursing experience in the particular specialty area of practice may apply to general areas that do not have practice requirements and later apply for admission to a specialty area of concentration after meeting the minimum practice experience.

International Students. Students from other countries are welcome to apply to both undergraduate and graduate levels of study. Only limited financial aid is available. Successful completion of the Test of English as a Foreign Language (TOEFL) - minimum score of 550 - and Test of Written English (TWE) - minimum score

of 5, are required if the major portion of the applicant's prior education has not taken place in an English-speaking school.

Post-Master's/Post-Doctoral Nondegree Option. A post-master's/post-doctoral nondegreed option is available for R.N.'s with a master's degree in nursing. This program has been designed to facilitate the attainment of specific skills without replicating an entire graduate program. Transcripts are evaluated on an individual basis to determine advanced placement. Applicants should contact the College Admissions Office for specific admission requirements for each area of concentration. Applicants to the nondegreed options must submit transcripts of all college course work attempted, GRE results, and evidence of R.N. licensure in at least one state or jurisdiction. All applicants must also complete an interview with at least one faculty member.

Curriculum

Bachelor of Science. The prelicensure curriculum consists of 90 quarter hours of pre-health course work including those program prerequisites listed in the admissions section. The two-year upper division nursing curriculum requires a minimum of 90 quarter hours of upper division study in nursing and related science courses for a total of 180 quarter hours for the bachelor of science degree.

The Graduate Curriculum. The graduate curriculum allows the student to exit with the master of science degree or if accepted for further study, proceed for the N.D. or D.N.Sc. A set of core courses is required for every student at the graduate level with additional hours for each higher degree. Cognate course representing course work from the biological, behavioral and organizational sciences are determined by each degree. Advanced clinical specialty courses are required as determined by an area of concentration.

A minimum of 12 hours of practicum in the area of concentration for the M.S. degree is required plus an additional 8 hours of practicum for the N.D.

Course requirements vary in each area of concentration. The college reserves the right to modify course requirements in consideration of overall curricular goals and design. At least 55 quarter hours of graduate credit or more, depending upon specialization, are required for the M.S. degree. The N.D. degree requires at least 85 hours of postbaccalaureate study and the D.N.Sc. degree requires at least 125 quarter hours of postbaccalaureate study exclusive of the dissertation.

Terminal Objectives for Graduates of the College of Nursing

B.S. Objectives	M.S. Objectives
<p>Synthesize and apply knowledge from the humanities, biology, social, and nursing sciences to clinical practice.</p> <p>Practice as a generalist in a variety of settings at all levels of prevention.</p> <p>Demonstrate effective clinical decision-making with a variety of client populations across the life span.</p> <p>Collaborate with other members of the health team to define outcomes and provide cost-effective care.</p> <p>Participate in the evaluation and implementation of standards of practice.</p> <p>Apply basic ethical principles in the delivery of care.</p> <p>Apply concepts and principles of teaching and learning in working with client populations and members of the health care team.</p> <p>Critique and apply research findings in clinical practice.</p> <p>Demonstrate an understanding of the process by which health care policy is influenced and made.</p> <p>Participate in activities which promote professional and personal development.</p> <p>Apply ethical and legal principles to complex health care circumstances.</p>	<p>Evaluate usefulness of theories for clinical nursing practice, education, and management.</p> <p>Function as an advanced practice nurse in a specialty area of practice.</p> <p>Advocate for diverse populations with complex needs at all levels of prevention.</p> <p>Demonstrate leadership in a specialty area of practice.</p> <p>Provide clinical consultation in a specialty area of practice.</p> <p>Plan and coordinate multidisciplinary interventions within a variety of health care systems.</p> <p>Develop and monitor continuous quality improvement programs in a selected area of practice.</p> <p>Utilize strategies to initiate and facilitate organizational change.</p> <p>Facilitate the conduct and utilization of research.</p> <p>Participate in the development and implementation of professional standards and policies for clinical practice.</p> <p>Participate in the formulation of health and social policies.</p> <p>Develop educational materials and strategies and evaluate their effectiveness within a specialty area of practice.</p>

Bachelor of Science. The objectives of the undergraduate program in nursing are to create a climate of learning for students to grow and develop as competent beginning professional nurses.

Master of Science. The master's level of the curriculum is designed to prepare graduates to function as advanced practice nurses. These roles require a central focus on clinical practice with skill in education, research, administration and consultation.

Terminal Objectives for Graduates of the College of Nursing

N.D. Objectives	D.N.Sc. Objectives
<p>Apply theoretical and research-based interventions to effect health outcomes in diverse populations at defined levels of prevention.</p> <p>Provide leadership in program development, management, and evaluation.</p> <p>Function as a leader in advanced practice in a variety of roles.</p> <p>Develop and implement professional standards for clinical practice.</p> <p>Analyze health care trends and collaborate with others to implement and evaluate health and social policies as they impact client populations.</p> <p>Coordinate, conduct, and utilize clinical research.</p> <p>Function as a clinical educator in a variety of settings.</p> <p>Provide effective management in rapidly changing systems.</p>	<p>Synthesize and apply theoretical and research-based knowledge in the investigation of clinical phenomena.</p> <p>Test and integrate multidisciplinary knowledge in models of clinical nursing practice across the levels of prevention.</p> <p>Generate and disseminate research-based clinically related knowledge that has impact on developing nursing science, advancing nursing practice, and influencing health policy.</p> <p>Analyze health care trends and utilize leadership skills to influence health and social policy for diverse client populations.</p> <p>Participate in collaborative/multidisciplinary practice and research.</p> <p>Assume faculty responsibilities within a senior academic environment.</p> <p>Function as a clinical nursing scientist.</p>

Doctor of Nursing. The student who completes the prescribed program of study for the N.D. degree is prepared to function as an advanced practice nurse with emphasis on providing leadership in complex systems. The graduate will be prepared to initiate clinical research utilization studies and promote an environment which facilitates the conduct and utilization of clinical research.

Doctor of Nursing Science. A graduate of the D.N.Sc. program will have developed competencies as an expert clinical practitioner, the investigative skills of a nurse research, and the leadership skills for developing health policy and changing health care systems.

Master of Science. The master of science degree in nursing provides opportunities for focus in clinical specialization. Students declare one of six departments: Community Health, Gerontology, Medical, Maternal Child Health, Psychiatric/ Mental Health, or Surgical Nursing. Specialization is developed with selections of clinical seminars and practica. Numerous options are available for student selection in cardiopulmonary, community health, critical care, gerontological, medical, oncology, orthopaedics, pediatrics, psychiatric, rehabilitation, surgical, transplantation, or women's health nursing. Nurse practitioner options at the M.S. level include: acute care, adult, anesthesia, gerontology, neonatal, pediatric and psychiatric areas.

A dual degree option is available for those desiring advanced preparation in clinical nursing science and the critical management skills of business administration. Graduates earn the M.S. degree from Rush and the Master of Management (M.M.) degree from the J.L. Kellogg Graduate School of Management at Northwestern University.

The master of science degree in nursing requires completion of a minimum of 55 quarter hours of credit exclusive of prerequisites.

Doctor of Nursing. The doctor of nursing degree allows an emphasis on advanced clinical nursing practice. All areas of concentration listed at the M.S. level are available for the N.D. level. Nurse practitioner foci include: community health, gerontology, neonatal, and pediatric. The primary health care concentration for nurse practitioners is available at the N.D. level.

Students who have completed at least an undergraduate liberal arts degree and qualify for graduate study can complete the requirements for the N.D. degree in 12 to 15 quarters of full-time study (approximately four academic years of enrollment as full-time students). Students with prior nursing education are evaluated individually and are required to complete curriculum requirements not already accomplished in their earlier nursing education.

Doctor of Nursing Science. The research doctoral program leading to the Doctor of Nursing Science (D.N.Sc.) is designed to develop nursing knowledge through the integration of research in advanced clinical practice. Cognate studies, clinical practice and research methodologies are combined for application to diverse and changing health care needs.

The doctoral student and his/her advisor mutually define an individual program that includes an area of clinical nursing for specialization and investigation. The doctoral

program will enable the graduate to have the competencies of an expert clinician, the investigative skills of a nurse-researcher and the leadership skills needed for developing health care systems.

Academic Policies

(Additional policies are listed in the Academic Information section.)

Continuous Enrollment. Following matriculation in the College of Nursing, a student must remain enrolled each quarter until all requirements for the degree are met and the degree conferred. Fall start prelicensure students are not required to enroll during the summer quarter. Students enrolling only to complete requirements for a course in which a grade of incomplete (I) was given must register for NUR 999 for zero credits. This course carries an enrollment fee (see Financial Affairs section).

A student in the Summer Doctoral program must be enrolled full-time for three consecutive summers until core and cognate courses are completed and then continuously while completing the dissertation.

A student who fails to enroll for two consecutive quarters and has not been granted a leave of absence is considered withdrawn (by reason of unexplained nonenrollment) and must apply for readmission into the program.

Preregistration. Following matriculation in the College of Nursing continuing students must preregister during the official time frame for preregistration as posted by the registrar. Nursing students who register after this time in any quarter will be charged a late preregistration fee (see Financial Affairs section).

Academic Progression. Student progress in the College of Nursing is reviewed and evaluated in several ways. The academic policies established by the faculty are interpreted and applied by the student's academic advisor, the Assistant Dean for Student Support Services and the Progressions Committee. The faculty reserves the right to request the withdrawal of any student whose conduct, physical or mental health or performance demonstrates lack of fitness for continuance in a health profession. Any such student not voluntarily withdrawing will be dismissed from the University.

Since much of the work in nursing assumes that students will achieve a progressively higher level of understanding and skill, high academic performance is expected. The individual student is responsible for acquiring knowledge inside and outside of formal classroom and clinical settings.

Baccalaureate Students. Baccalaureate students will be considered in good standing at Rush University unless placed on academic probation. A cumulative grade point average (GPA) of 2.0 (A=4.0) must be maintained. A student whose cumulative GPA falls below 2.0 may enroll for no more than two quarters as a probationary student to attempt to raise his/her cumulative GPA. (During each interim quarter the student must demonstrate improved academic performance.) If at the end of two quarters the required GPA is not attained, the student will be dismissed. Academic probation is limited to a maximum of two quarters during the entire academic program.

An F or N grade in any course is grounds for dismissal from the program. Permission may be given to retake a course at the discretion of the Progressions Committee. If permission is granted, a failed course must be repeated the first time it is offered following the quarter in which the failure occurred or when space is available. Students are limited to repeating only one clinical course.

Graduate Students. Students in all graduate programs must maintain a cumulative 3.0 average in graduate level work in order to remain in good academic standing. A full-time student whose cumulative GPA falls below 3.0 may enroll for one quarter as a probationary student to attempt to raise his/her cumulative GPA. A part-time student may enroll for two quarters as a probationary student. Students are dismissed from the college upon failing to achieve satisfactory academic standing in the required period of time or if their GPA falls below a 3.0 a second time.

A student must achieve an A or B grade in all required clinical nursing courses. If less than a B grade is achieved, a student may repeat the one course with the approval of the Progressions Committee and the student's advisor. An F grade in a required clinical nursing course will result in dismissal from the program.

Transfer of Credit. Undergraduate courses taken at an accredited college or university that fulfill the prerequisites for admission may be applied toward the baccalaureate degree. Elective credit required at Rush may be fulfilled by upper division courses taken at another institution. Upper division courses must be at the 300 or 400 level, or their equivalent, and academic in nature. For instance, courses in physical education or applied arts are not accepted. A transfer credit petition form must be completed.

Graduate credit earned elsewhere may be applied to the M.S., N.D. and D.N.Sc. degree requirements for Rush subject to the approval of the advisor and the Associate Dean. Credits in excess of 55 quarter hours, to be applied to the D.N.Sc., require approval of the director of curriculum and instruction. Before this credit may be approved to meet degree requirements, a Transfer Credit Petition form must be completed. The form should be completed during the first quarter of enrollment in the degree program. Courses at the graduate level must have a grade of B or better in order to qualify for transfer. This includes courses taken at Rush under unclassified status.

After matriculation, students who plan to request credit for courses taken elsewhere must complete a Transfer Credit Petition form available in the Office of the Registrar.

Prelicensure Enrollment in Graduate Courses. With permission, prelicensure students may register for graduate level courses. Any credit earned in this manner will automatically apply toward the baccalaureate degree. Should any undergraduate student later apply for and gain admission to a graduate program at Rush University, the student may request that the graduate credit earned be applied toward the master's degree. A transfer credit approval form should be completed.

Credit will transfer in this manner only if the student has enough cumulative credits. A student must earn a minimum of 180 quarter hours to receive the bachelor of science degree. For instance, if a student actually earned 187 quarter hours, and seven quarter hours are at the graduate level at Rush, seven quarter hours could potentially be credited toward the master's degree.

Credit by Examination. A student who passes a proficiency examination at Rush University will earn academic credit toward the degree. The credit will equal the credit value of the course as listed in the current *Rush University Bulletin*. Information that is posted on the transcript is the course prefix and number, title, credit value and a K grade. A transcript guide that accompanies all transcripts issued by the Office of the Registrar explains that the "K" grade means credit was earned through proficiency examination. Credit for the course will appear in the quarterly and cumulative totals as credit earned. The credit is not calculated into the student's GPA. A fee for the examination is assessed based on the number of credits assigned to the course.

Incomplete Grades. The grade of incomplete (I) is normally given only when circumstances beyond the control of the student prevent completion of course requirements and the student has received permission to defer completion of these unmet course requirements. The course director shall determine what work will be required to remove the incomplete and shall establish a specific time within which the student must complete such work.

A grade of incomplete does not reflect upon the quality of the student's performance. Upon the completion of the unmet course requirements this grade will be replaced by the new grade.

Students may request an incomplete from a course director. If the course director grants the privilege of an incomplete, the I grade must be removed by the end of the next quarter or as negotiated with the course director, or it will revert to a failing (F or N) grade.

A student receiving an I grade may not begin a course for which an incomplete grade is a prerequisite.

Absences. Students are responsible for all material presented in class sessions. Students are expected to be in attendance at all seminar and clinical practice periods and are responsible for all content presented therein. When illness or other exceptional circumstances prevent attendance, the student is responsible for contacting the instructor (in advance, if possible) to plan for meeting the objectives on an individual basis. Students absent from an examination are responsible for notifying the course director according to the guidelines specified in the course syllabus. Failure to do so may result in a zero for that examination or an incomplete for the course as determined by the course director.

Examination Policy. The examination policy is the responsibility of the individual course director who will inform students of examination requirements for that particular course. A period at the end of the quarter is provided for examinations. This period may be used as the course director chooses.

Leave of Absence. A student who must interrupt his/her studies for reasons of sustained ill health or compelling personal situations may apply for a leave of absence for a stated period of time, not to exceed one year. Leaves of absence for one quarter are approved by the advisor and the Assistant Dean of Student Support Services. Leaves of absence for two to four quarters must be approved by the Progressions Committee as well. If approved by the committee and the Assistant Dean of Student Support Services, the

student must satisfy the conditions of the leave before reentering and must comply with all policies, requirements and course sequences in effect at the time of reentry. The student must notify the advisor of his/her intent to return three weeks in advance of reenrollment. (See Academic Information section for additional requirements).

Readmission. Any student who has withdrawn from a program or has not been enrolled for two consecutive quarters or any dismissed student may apply for readmission by submitting an application for this purpose to the Office of College Admissions Services. Applications for readmission must be received at least six weeks before the planned return. An interview may be required. A reentering student must meet the conditions for reenrollment stated in his/her dismissal or reentry acceptance letter and all policies, requirements and course sequences in effect at the time of reentry. The student will pay tuition and fees at the rates in effect at the time of reenrollment.

Nursing students who received an unacceptable grade in a course which resulted in dismissal must repeat the course upon their reinstatement. The hour and grade points of the second grade only will be counted in the cumulative GPA.

Graduation Requirements. The Bachelor of Science degree with a major in nursing requires a minimum of 180 quarter hours. At least 90 quarter hours are used to fulfill the prehealth curriculum. The remaining 90 quarter hours constitute the upper division curriculum of which four quarter hours may be upper division electives.

A minimum of 45 quarter hours shall be spent as an upper division student in academic residence at Rush University. R.N.'s completing the baccalaureate degree must complete 36 hours in residence at Rush. Credit earned through proficiency examination may not be used to meet this requirement.

Candidates for the B.S. degree must earn a 2.0 cumulative GPA in all required nursing courses. A 2.0 cumulative GPA must be earned in all computed upper division credits taken at Rush University.

Participation at commencement is expected of all graduates.

After receiving the baccalaureate degree, graduates are eligible to write the National Council Licensure Examination for Registered Nurses.

The Master of Science degree in nursing requires a minimum of 55 quarter hours and must include all course work and residencies required for the selected area of concentration. No less than 27 quarter hours shall be spent in residence at Rush University for the M.S. degree. Part-time masters students must complete degree requirements within five years (60 months).

The Doctor of Nursing degree requires a minimum of 85 quarter hours of postbaccalaureate study and must include all course work and residencies required for the selected area of concentration. No less than 42 quarter hours shall be spent in residence at Rush University for the N.D. degree. Prelicensure course work is additional. No less than 15 quarter hours of postmaster's study shall be spent in residence at Rush University for the N.D. degree. Part-time doctor of nursing students must complete degree requirements within seven years.

The Doctor of Nursing Science degree requires completion of the approved individual program of study. Course work for the D.N.Sc. must be the equivalent of 125 quarter hours of graduate credit in addition to the completed dissertation. No less than 62 quarter hours of postbaccalaureate study shall be spent in residence at Rush University for the D.N.Sc. degree. No less than 35 quarter hours of postmasters study shall be spent in residence at Rush University for the D.N.Sc. degree. No less than 20 quarter hours of postnurse doctorate study shall be spent in residence at Rush University for the D.N.Sc. degree. Part-time postbaccalaureate doctor of nursing science students must complete degree requirements within ten years. Postmasters students must complete degree requirements within five years (60 months).

Policies Concerning Student Misconduct

The Committee on Student Misconduct is charged with investigating and adjudicating charges of student misconduct including but not limited to: violation of commonly accepted ethical standards of an academic community, such as cheating and plagiarism; falsification of student records, transcripts, financial aid forms or applications; unlawful use or possession of controlled substances on the Medical Center campus; conviction of a crime deemed serious enough to render the student unfit to pursue his/her profession; or other conduct that is inconsistent with generally accepted standards of behavior within an academic community or the nursing profession.

All charges of student misconduct shall be presented to the Associate Dean. If in the opinion of the Associate Dean the matter may be resolved without a hearing, an attempt may be made to do so.

The student charged with misconduct or the Associate Dean may at any time exercise the right to have the charges heard by the Committee on Student Misconduct. However, in the event that a charge implicates issues of both academic performance and student misconduct, the associate dean shall make a final and nonappealable determination as to which college committee shall hear the matter. In every case the Associate Dean will notify the complainant in writing by certified mail within 30 days of receiving the complaint as to whether the matter was referred to the Committee on Student Misconduct or another college committee. The Associate Dean will place a copy of this letter in the student's file.

If the charge is referred to the Committee on Student Misconduct, within ten (10) working days after the charge of misconduct has been forwarded, the chair of the student misconduct committee will initiate the steps for preparing for a hearing. (A copy of the specific policies and procedures for preparing and conducting a hearing can be obtained from the Assistant Dean of Student Support Services.)

The decision of the committee shall be in writing, shall contain a summary of the evidence and testimony upon which the decision is based, and shall be delivered to the student by certified mail, to the Faculty Senate, and to the Dean. The Faculty Senate shall consider the committee's determination and any written exceptions to said determination submitted by the student, and shall render its recommendation adopting, rejecting or modifying, in whole or in part, the committee's conclusion. Copies of the Faculty Senate's recommendation shall be transmitted to the Committee on Student Misconduct, the student, and the Dean. The Dean will then consider the matter and render a final, nonappealable decision with respect to the charges of misconduct. Notification of the decision will be sent to the student by certified mail, the chairperson of the student misconduct committee, Faculty Senate and the associate dean for educational programs.

The Associate Dean will place a copy of this letter in the student's file.

Student Conduct and Academic Honesty

(Please refer to the Rush University policy statement in the General Information section, on page 11-12).

College of Nursing Committees

Faculty Senate. The Faculty Senate is the governing body for the faculty and operates as the Committee on Committees. The senate has ten members representing each academic rank level, as well as members from the faculty-at-large. Members of this body are elected annually and the senate elects its own chairperson. Two student representatives also serve on the senate.

The standing committees of the College of Nursing assist with the work of the college. Members of the committees are elected by the total faculty every June. The committees include:

Admissions Committee. This committee is responsible for the review of all applicants to the College of Nursing and maintaining the admission standards and policies for all nursing programs. There are five members on this committee plus three student representatives.

Progressions Committee. This committee is responsible for maintaining the progression standards and policies for all nursing programs and for the review of the progress and performance of all students. There are five members on this committee.

Curriculum. This committee serves as the monitoring resource for the curriculum. The committee reviews all new courses and/or major changes in the curriculum, establishes and monitors methodology for curriculum evaluation and provides overall consistency for curriculum development. There are seven members on this committee plus two student representatives.

Affirmative Action Committee. This committee is involved with the recruitment and retention of students and faculty from minority groups and data collection and research in relation to affirmative action activities and progress. There are five members on this committee including two student representatives.

Evaluation Committee. The committee is responsible for coordinating procedures pertaining to all aspects of program evaluations. There are seven faculty members and two student representatives.

Faculty Appointments and Promotions Committee. This committee acts upon the appointments and promotions of faculty in accordance with the Rules of Governance. There are six members on this committee representing junior and senior faculty members.

Faculty Resource and Development Committee. This committee is responsible for the design and implementation of programs to promote the growth and development of faculty. There are six members on this committee including a student representative.

Student Misconduct Committee. This committee investigates and adjudicates charges of student misconduct. There are three members from the faculty and two student members. The Assistant Dean for Student Support Services and the Associate Dean for Student Services of Rush University are also members.

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John E. Trufant, Ed.D.
Dean, College of Health Sciences
Vice President, Academic Resources

"The faculty of the College of Health Sciences, through the unification of their academic and operational responsibilities, strive to develop leaders for the future of health care in an array of the allied health professions and management. The hallmarks of scholarly excellence are the excitement of discovery, its communication to others and its application to the field. With faculty and students as colleagues, these are what we seek at Rush."

College of Health Sciences

The College

The College of Health Sciences, founded in 1975, is responsible for education and research in the allied health professions; including management. More than six of every ten health care workers in the United States is in allied health. Over fifty separate categories of professionals comprise this largest segment of the health care workforce.

The faculty of the College of Health Sciences serve the Medical Center as practitioner-teachers. Nearly all have patient care or service responsibilities while concurrently filling academic roles as teachers and investigators. Through the faculty, therefore, the students have access to the latest treatment and practice patterns of skilled clinicians and managers in a dynamic academic health center.

Mission

The College of Health Sciences sponsors high quality academic programs in the health professions in support of Rush-Presbyterian-St. Luke's Medical Center. The primary purposes of the College are as follows:

- To educate and train high quality health professionals to meet national needs as well as those of the Rush system
- To advance health care knowledge by fostering applied and clinical research that also enhances patient care
- To enhance the patient care services of the Rush System for Health
- To contribute to the communities of which the Medical Center is a member
- To foster the individual growth and satisfaction of the faculty, students and staff of the College

Organization

The organization of the College of Health Sciences centers around seven departments, each headed by a department chairperson. The chairpersons report to the college dean. The senior representative policy body of the College is the College Council, comprised of two faculty

members from all of the departments and students from the College at large. Meetings of the Council are ordinarily held each month. Faculty and students may propose agenda items, and guests are welcome by invitation.

The seven departments of the college, each described later in this section, include Medical Technology and Perfusion Technology, which offers a bachelor of science degree. Five departments offer master of science degrees---Communication Disorders and Sciences, Clinical Nutrition, Health Systems Management, Medical Physics and Occupational Therapy. In addition, the College includes the Department of Religion, Health and Human Values, which offers internships in clinical pastoral education and a certificate program in health care ethics and health care and spirituality. The Section of Ethics is also organized as part of this department.

Alumni Activities

The College encourages the development of strong ties with its graduates. All graduates are considered alumni of Rush University, and no dues are levied. Each of the programs in the College of Health Sciences has its own alumni association.

Academic Policies

(Additional policies are listed in the Academic Information section and in the program descriptions).

Credit Hours. Rush University is on a quarter system. Each quarter is at least ten weeks in length. An examination period is provided at the end of each term and most instructors give a final examination during this time. The quarter hour is the unit used by the College of Nursing, the College of Health Sciences, and The Graduate College to determine credit for courses taken. As a general rule, one quarter hour represents contact time of one lecture hour, two hours of small group discussion or three laboratory or clinical hours per week.

Transfer of Credit. Undergraduate courses taken at an accredited college or university that fulfill the prerequisites for admission may be applied toward the baccalaureate degree.

Graduate credit earned elsewhere may be applied to the master of science degree requirements for Rush, subject to the approval of the department chairperson. Before this credit may be approved to meet degree requirements, a transfer credit approval form must be completed. The form should be completed during the first quarter of enrollment in the degree program.

After matriculation, students who plan to request credit for courses taken elsewhere must either complete a transfer credit approval form or register for concurrent enrollment. Information regarding either of these options is available in the Office of the Registrar. Prior approval of the department chairperson is required.

Credit by Examination. A student who passes a proficiency examination at Rush University will earn academic credit toward the degree. The credit will equal the credit value of the course as listed in the current *Rush University Bulletin*. Information that is posted on the transcript is the course prefix and number, title, credit value, and a K grade. A transcript guide that accompanies all transcripts issued by the office of the registrar explains that the K grade means credit was earned through proficiency examination. Credit for the course will appear in the quarterly and cumulative totals as credit earned. The credit is not calculated into the student's grade point average (GPA).

Full-time and Part-time Enrollment. Twelve quarter hours is considered full-time enrollment. Registration for fewer than twelve hours constitutes part-time enrollment.

Undergraduate Enrollment in Graduate Courses. With permission, undergraduate students may register for graduate level courses. Any credit earned in this manner will automatically apply toward the baccalaureate degree. Should an undergraduate student later apply for and gain admission to a graduate program at Rush University, the student may request that the graduate credit earned be applied toward the master's degree. A transfer credit approval form should be completed.

Credit will transfer in this manner only if the student has enough cumulative credits. A student must earn a minimum of 180 quarter hours to receive the bachelor of science degree. If a student actually earns 187 quarter hours for example, and seven quarter hours are at the graduate level at Rush, seven quarter hours could potentially be credited toward the master's degree.

Incomplete Grades. The grade of incomplete (I) is normally given only when circumstances

beyond the control of the student prevent completion of course requirements and the student has received permission to defer completion of these unmet course requirements. The course director shall determine what work will be required to remove the incomplete and shall establish a specific time frame within which the student must complete such work.

An incomplete grade does not reflect upon the quality of the student's performance, and upon completion of the unmet course requirements, this grade will be replaced by the new grade. (See Academic Information section for additional requirements.)

Undergraduate Students. Students receiving grades of incomplete are responsible for asking the instructor for the exact work required to remove the incomplete. The "I" grade must be removed by the end of the next quarter or it will revert to a failing (F or N) grade unless otherwise negotiated by the course director and student. If the student is not enrolled in other courses while completing the incomplete, the enrollment fee is imposed (see Financial Affairs section).

Graduate Students. Graduate students may request an incomplete from the course director. An incomplete grade not removed by the end of the next quarter will revert to a final grade as determined by the course director. If the student is not enrolled in other courses while resolving the incomplete, the enrollment fee is imposed (see Financial Affairs section).

Absences. Students are responsible for all material presented in class sessions. Faculty members are not obligated to provide extra help to students who miss or arrive late to classes. When illness or other special circumstances prevent attendance, the student is responsible for contacting the instructor (in advance, if possible) to plan for meeting the objectives on an individual basis. Students absent from an examination are responsible for notifying the course director according to the guidelines specified in the course syllabus. Failure to do so will result in a zero for that examination or an incomplete for the course as determined by the course director.

Examination Policy. The examination policy is the responsibility of the individual course director who will inform students of examination requirements for that particular course. A period at the end of the quarter is provided for examinations. This period may be used as the course director chooses.

Dean's List. Undergraduate students earning a 3.5 (A=4.0) or higher GPA for at least twelve credits of classroom course work are given

recognition by having their names placed on the Dean's List. The Dean's List is published at the beginning of each new quarter for work completed in the previous quarter.

Thesis. Several programs in the College of Health Sciences either require or have an option for a thesis project. Completing one's thesis is a significant academic accomplishment and acknowledges that the student has conducted an independent scientific investigation that will add to the knowledge in his/her field. All students are required to have their theses registered with University Microfilms, Inc. This process includes the publication of the thesis abstract, the microfilming of the thesis, and the copyrighting of the work. In addition, the original copy of the thesis is bound and becomes a permanent part of the collection of the Library of Rush University. The director of the Library of Rush University coordinates the process.

Leave of Absence. A student who must interrupt his/her studies for reasons of sustained ill health or compelling personal situations may apply for a leave of absence for a stated period of time, usually not to exceed one year. Leave of absence requests must be submitted in writing to the department chairperson or his/her designate. If approved by the department chairperson and dean, the student must satisfy the conditions of the leave before reentering and must comply with all policies, requirements, and course sequences in effect at the time of reentry. The student shall provide, to the administrator(s) who granted the leave, written notice of his/her intent to return. The student will pay tuition and fees at the rate in effect at the time of reenrollment.

Readmission. Any student who has withdrawn from a program or has not been enrolled for two consecutive quarters or any dismissed student may apply for readmission by submitting an application for this purpose to the chairperson of the department to which he/she is applying. Applications for reenrollment must be received at least three months before the planned return. An interview may be required. A reentering student must meet the conditions for reenrollment stated

in his/her dismissal or reentry acceptance letter and all policies, requirements, and course sequences in effect at the time of reentry. Previously enrolled students may be considered as part of the pool of new applicants and are not guaranteed admission. The student will pay tuition and fees at the rates in effect at the time of reenrollment.

Student Appeals Process. A student wishing to appeal an academic decision should follow the process summarized below, in the sequence indicated.

1. Discuss and attempt to resolve the issue with the faculty member in question.
2. Discuss the issue with the department chairperson (or with the program director, if applicable).
3. Submit a written appeal to the student progress and promotion committee of the department.
4. Submit a written request for a hearing to the University Committee on Faculty and Student Appeals. The recommendation of this committee will be forwarded to the College Council and the dean for review and final determination.

College of Health Sciences Committees

College Council. The senior representative governing body of the College of Health Sciences is the College Council. The College Council membership is comprised of both faculty members and students. The dean of the college serves as chairperson. Faculty members represent all departments and ranks. Students represent both undergraduate and graduate levels.

Committee on Senior Faculty Appointments and Promotions. This committee recommends all promotions and appointments of faculty to senior ranks. It is elected by the faculty and has representatives from all departments in the college.

Department of Clinical Nutrition

Philosophy

The primary mission of the Department of Clinical Nutrition is to develop clinical nutrition practitioners who are competent to provide medical nutrition therapy to individuals and groups within a variety of settings and who are prepared at the Master's Degree level to conduct research which will contribute to the body of knowledge which supports dietetic practice. The program is designed to teach students to integrate and apply principles of food, nutrition, and management services in order to improve the nutritional status of individuals and groups. The importance of maintaining a current knowledge base and incorporating new knowledge into practice patterns is emphasized throughout the program.

The philosophy of the department parallels that of the Medical Center in that the academic component is fully integrated with the health care function of the institution. The faculty is committed to excellence in teaching, research, and clinical care and strives to be visionary in meeting the future needs of the profession in a changing health care environment.

The Program

A two-track program having a common core of courses and leading to a master of science degree with a major in clinical nutrition is offered.

Track I is an 18-month dietetic internship/master's degree program that integrates didactic and practicum experience. Upon completion of the program the student is eligible to take the Registration Examination for Dietitians.

Track II is designed for the Registered Dietitian who wishes to expand his/her understanding of advanced human nutrition, clinical management techniques, and the research process.

Accreditation. The Rush-Presbyterian-St. Luke's Medical Center Dietetic Internship is currently granted accreditation status by the Commission on Accreditation/Approval for Dietetic Education of The American Dietetic Association. CAADE is a specialized accrediting body recognized by the Council on Recognition of Post Secondary Accreditation and the United States Department of Education. The address and phone number of CAADE are: 216 W.

Jackson Boulevard, Suite 800, Chicago, IL 60606, 312/899-4876.

Admission Requirements

The student must hold a baccalaureate degree from an accredited college or university and provide evidence of having successfully completed a college course in basic statistics. Applicants who have obtained their education outside the U.S. and its territories must have their academic degree (s) validated as equivalent to the Baccalaureate or Master's degree conferred by a regionally accredited college or university in the U.S. These applicants also must submit results of TOEFL examination.

The generally applied guideline for acceptance into the program is a B average for undergraduate achievement. Scores on the Graduate Record Examination taken within the last five years must be submitted. In addition, evidence of work experience in food service systems and/or clinical dietetics is highly recommended.

Track I students must provide evidence of having completed a didactic program in dietetics approved by The American Dietetic Association.

Track II students must provide evidence of dietetic registration.

Academic Progression

The faculty reserves the right to request the withdrawal of any student whose conduct or performance demonstrates lack of fitness for continuance in a health profession.

Grades of B or above are required in NTR 505, 506, 511, 512, 513, 514, 515; students who earn less than a B will be required to repeat the course(s) and will not be allowed to continue in the program until a B is earned. A grade of D or F in a supervised experience (NTR 511, 512, 513, 514, 515) results in dismissal from the University. Grades of C or above are required in all other courses. Automatic probation results when a student's cumulative grade point average (GPA) falls below 3.0 or when a student receives a grade of F in any course other than supervised experience. The Committee on Academic Progress and Promotions notifies any student placed on probation, states the reason(s) for probation and the conditions that must be satisfied for removal of probationary status.

Curriculum: Clinical Nutrition

Fall Quarter	Track I	Quarter Hours
HSM 510	Health Care in Americal	1
PVM 541	Biostatistics I	4
NTR 503	Management in Dietetics I	2
NTR 521	Human Metabolism I	3
NTR 511	Supervised Experience in Food Systems Mgmt. I	3
		<hr/> 13
Winter Quarter		
NTR 504	Management in Dietetics II	1
NTR 522	Human Metabolism II	3
NTR 572	Nutrition Communication	3
NTR 582	Introduction to Research	3
NTR 512	Supervised Experience in Food Systems Mgmt. II	3
		<hr/> 13
Spring Quarter		
NTR 505	Advanced Clinical Nutrition I	4
NTR 541	Interrelationships of Nutrition and Disease I	4
NTR 565	Seminar I	1
NTR 513	Supervised Experience in Clinical Nutrition I	3
		<hr/> 12
Summer Quarter		
NTR 506	Advanced Clinical Nutrition II	3
NTR 542	Interrelationships of Nutrition and Disease II	4
NTR 586	Applied Nutrition Research I	2
NTR 514	Supervised Experience in Clinical Nutrition II	3
		<hr/> 12
Fall Quarter		
NTR 566	Seminar II	1
NTR 587	Applied Nutrition Research II	3
NTR 515	Supervised Dietetic Staff Experience	5
	Electives	3
		<hr/> 12
Winter Quarter		
NTR 574	Management in Nutrition Care Systems	2
NTR 588	Applied Nutrition Research III	2
	Electives	2
		<hr/> 6
TOTALS	Required hours	64
	Elective hours	4
	Minimum Hours Required for Graduation	68

A student who earns a grade of D or F in a required course, except supervised experience, must repeat the course. Failure to earn a grade of C or better in a repeated course results in dismissal from the program. A student who earns a grade of D or F in two or more required courses will be dismissed from the University. In a repeated course, the new grade replaces the earlier D or F grade in the cumulative GPA.

Full-time students placed on probation must earn a cumulative GPA of 3.0 or greater by the end of the next two consecutive quarters. Part-time students placed on probation must earn a cumulative GPA of 3.0 or greater after completing the next 25 credit hours. Improvement in GPA must be demonstrated each quarter of probation.

Academic Policies

(Additional policies are listed in the College of Health Sciences and in the Academic Information sections).

Full-time and Part-time Enrollment.

Track I is a combined dietetic internship/master's degree program offered on a full-time

basis only. The program extends over six quarters including a summer session.

Track II is a master's degree program for Registered Dietitians offered on a part-time or full-time basis. The program may be completed in six quarters or longer, up to five years.

Graduation Requirements. A cumulative GPA of 3.0 or greater is required of all graduates.

Track I students shall complete a minimum of 68 quarter hours within 36 months of the beginning of the first quarter of enrollment in the program. Quarter hour credits for research may be extended to a maximum of five years beginning with the first quarter of enrollment in the program.

Track II students shall complete a minimum of 45 quarter hours within five years of the beginning of the first quarter of enrollment in the program.

Curriculum: Clinical Nutrition

Quarter	Track II	Quarter Hours
Fall	NTR 521 Human Metabolism I HSM 510 Health Care in America	3 1
Winter	NTR 522 Human Metabolism II NTR 572 Nutrition Communication	3 3
Spring	NTR 541 Interrelationships of Nutrition and Disease I	4
Summer	NTR 542 Interrelationships of Nutrition and Disease II	4
Fall	PVM 541 Biostatistics I	4
Winter	NTR 582 Introduction to Research	3
Spring	NTR 565 Seminar I NTR 586 Applied Nutrition Research I	1 2
Summer	Elective	1-3
Fall	NTR 566 Seminar II Elective	1 3
Winter	NTR 574 Management in Nutrition Care	2
Spring	NTR 587 Applied Nutrition Research II	3
Summer	Elective	1-3
Fall	NTR 588 Applied Nutrition Research III	2
	Required for M.S. degree	45

Research Activities

The faculty of the Department of Clinical Nutrition is involved in both basic and clinical research. This activity frequently is in collaboration with Rush Medical College faculty members in such departments as neurology, cardiology, oncology, surgery, or obstetrics. A research laboratory is available to support faculty and student research.

Service Activities

The general internship/master's degree program is jointly administered by two departments. The internship or supervised practice experience is provided by the

Department of Food and Nutrition Services within Rush-Presbyterian-St. Luke's Medical Center. The didactic component of the M.S. degree is provided by the Department of Clinical Nutrition in Rush University. The two departments allow full integration of operational and academic facilities/staff which provides unique opportunities for the merging of theory and practice within one institution.

In addition to the academic program, the Department of Food and Nutrition Services provides nutrition services to the hospital and to the outpatient area, operates four food service units within the Medical Center, and provides leadership in nutrition support in critical care.

Department of Communication Disorders and Sciences

Philosophy

The underlying basis for the master's degree programs in speech-language pathology and audiology is the teacher-practitioner model, by which students learn from faculty who take on dual roles as academicians and practitioners. This approach to professional education helps to bridge the gap that can exist between classroom teaching and clinical service delivery. Students learn in an environment where teaching, research, and patient care are fully integrated. Unlike many others training programs, the faculty at Rush participate fully in the clinical process in addition to teaching and research. Students receive excellent practicum experiences with diverse patients who present a full range of communicative disorders. Department faculty is supplemented by the expertise of physicians, scientists, and other health care professionals within the Medical Center. The audiology and speech-language pathology programs are accredited by the American Speech-Language-Hearing Association (ASHA).

Admission Requirements

At the time of application, individuals should have completed or be in the process of completing the baccalaureate degree at accredited institutions. The baccalaureate degree must be completed before commencing work at Rush University. Students entering the program must have successfully completed course work in introduction to audiology, phonetics and normal articulatory production, and normal language development. Additional suggested content areas include introduction to communication disorders, speech and hearing science, speech and hearing anatomy and physiology, and clinical method/practicum or psychology of learning.

Admission is granted for the fall quarter of each year. The completed application file includes an application form, application fee, three letters of recommendation from individuals acquainted with the applicant's academic or professional background, official transcripts from all universities attended and official scores from either the Graduate Record Examination (GRE) or the Miller Analogies Test (MAT). The generally applied minimum standards for acceptance into

the program are a 3.0 undergraduate grade point average (GPA) overall (on a 4.0 scale) or a 3.5 in major courses in speech-language pathology/audiology or a 3.5 in the prerequisite course content as listed in the application. Scores on the GRE should be at the 50th percentile or higher. The Admission Committee in the department reviews all applications and determines the applicants' eligibility.

Academic Policies

(Additional policies are listed in the College of Health Sciences and in the Academic Information sections, as well as in the department's student manual).

Academic Progression. The faculty reserves the right to request the withdrawal of any student whose conduct, health, or performance demonstrates lack of fitness for continuance in a health profession. Any such student not voluntarily withdrawing will be dismissed from the University. Appeal of dismissal must be made in writing to the department chairperson for consideration by the faculty.

Only grades of A, B, or C may fulfill degree requirements in all required courses as listed in the curriculum outline. Students will be considered in good standing at Rush University unless placed on academic probation. Due to the nature of the programs, clinical performance and classroom performance will be evaluated separately. Policies related to academic progression will be applied independently to clinical and didactic performance.

A student who earns a quarterly GPA of less than 2.0 will be dismissed from the university. A student who earns a grade of less than C in a required course must repeat that course, an equivalent course, or an alternative course at the discretion of the faculty. Petitions regarding the adequacy of a proposed alternative or equivalent course must be submitted to the Curriculum Committee of the department, with final approval or denial decided by the faculty. A student who earns a grade of less than C in two or more required courses may be dismissed from the University. In a repeated course, the new grade will replace the earlier grade in the cumulative GPA. Failure to receive a grade of C or better in a repeated course will result in dismissal from the University.

Curriculum: Audiology

Fall Quarter	Year I	Quarter Hours	Fall Quarter	Year II	Quarter Hours
HSM 510	Health Care in America	1	SHS 510	Professional Issues in Communication Disorders	3
SHS 502	Speech-Lang. Pathology Methods for Audiologists	1	SHS 526	Industrial Audiology	2
SHS 503	Hearing Science	3	SHS 581	Research Methods in Communication Disorders	4
SHS 507	Neurological Bases of Speech and Hearing	3	SHS 520	Audiology Practicum V	3
SHS 508	Clinical Methods in Communication Disorders	2			12
SHS 535	Anatomy and Physiology of the Auditory System	3			
SHS 536	Auditory Sys. Anatomy Lab	1			
SHS 516	Audiology Practicum I	1			
		15			
Winter			Winter		
SHS 528	Audiologic Assessment	4	SHS 548	Advanced Electrophysiologic Assessment	3
SHS 529	Clinical Methods in Audiology	1	SHS 575	Issues in Counseling	3
SHS 531	Amplification I	3	SHS 595	External Practicum	9
SHS 543	Electrophysiologic Assessment of the Auditory System	4			16
SHS 517	Audiology Practicum II	3			
		15			
Spring			Spring		
SHS 532	Amplification II	4	SHS 595	External Practicum	15
SHS 533	Adult Rehabilitative Audiology	4			15
SHS 544	Pediatric Audiology	3			
SHS 554	Instrumentation in Audiology	3			
SHS 518	Audiology Practicum III	3			
		17			
Summer					
SHS 523	Sign Language	2	Total		104
SHS 534	Pediatric Rehabilitative Audiol.	3	Electives		2
SHS 542	Electronystagmography	3			
SHS 550	ENG Lab	1	Minimum Hours Required for Graduation		106
SHS 566	Pathophysiology of the Auditory System	3			
SHS 519	Audiology Practicum IV	3			
		15			

Clinical probation is assigned to a student who fails to achieve a grade of C or higher in a clinical practicum. In such cases, the student is required to re-enroll in the practicum. Failure to achieve a grade of B or higher in the repeated pacticum should be considered a grounds for dismissal from the University.

Students placed on probation will be notified in writing by the department chairperson. The letter will state the reasons for placing the student on academic probation and the specific requirements which must be met by the student to reestablish good standing.

A student who earns a quarterly grade point average below 2.0 will be dismissed from the University. A student who earns a grade of less than C in a required course must repeat that course, an equivalent course, or an alternative course. Petitions in this regard will be reviewed by the Curriculum Committee of the department with final approval or denial by the faculty. A student who earns a grade of less than C in two or more required courses may be dismissed from the University. In a repeated course, the new grade will replace the earlier failing grade in the

cumulative GPA. Failure to earn a grade of C or better in a repeated course will result in dismissal from the University.

Interrupted Program. Any student who wishes or needs to interrupt their program must fulfill the following requirements:

1. Meet with the Chairperson of the Department and work out a plan of action before leaving the program.

Curriculum: Speech-Language Pathology

Fall Quarter	Year I	Quarter Hours	Fall Quarter	Year II	Quarter Hours
HSM 510	Health Care in America	1	SHS 510	Professional Issues in Communication Disorders	3
SHS 501	Audiological Methods for Speech-Lang. Pathologists	1	SHS 568	Cognitive Disorders	3
SHS 504	Speech Science	3	SHS 581	Research Methods in Communication Disorders	4
SHS 507	Neurological Bases of Speech and Hearing	3	SHS 515	Speech-Language Pract. V	3
SHS 508	Clin. Meth. Comm. Disorders	2			13
SHS 537	Anatomy and Physiology of the Speech System	3			
SHS 538	Speech System Anatomy Lab	1			
SHS 511	Speech-Language Pract. I	1			
		15			
Winter			Winter		
SHS 555	Instrumentation in Speech-Language Pathology	3	SHS 524	Fluency, Dysfluency, and Stuttering	3
SHS 556	Dysphagia I	2	SHS 575	Issues in Counseling	3
SHS 561	Articulation Disorders	4	SHS 590	External Practicum	9
SHS 564	Aphasia	4			15
SHS 512	Speech-Language Pract. II	3			
		16			
Spring			Spring		
SHS 533	Adult Rehabilitative Audiology	4	SHS 590	External Practicum	15
SHS 557	Dysphagia II	2			15
SHS 563	Voice Disorders	4			
SHS 567	Pathological Mechanisms of Speech-Lang Disorders	3			
SHS 513	Speech-Language Pract. III	4			
		17			
Summer					
SHS 522	Lang. Disorders in Children	3	Minimum Hours Required for Graduation 105		
SHS 562	Craniofacial Anomalies	3			
SHS 565	Motor Speech Disorders	4			
SHS 514	Speech-Language Pract. IV	4			
		14			

2. All full-time students must complete all degree requirements within 48 months of the beginning of the first quarter in which the student is enrolled in the department.
3. Students must follow all appropriate leave of absence/withdrawal procedures and policies as defined by Rush University.

Transfer of Credit Policy. A student may transfer up to 12 graduate quarter hours from an ASHA accredited program. Up to three of these 12 quarter hours may be in the area of clinical practicum. The issue of transfer of credit will be addressed only after the student is accepted into the program.

Graduation Requirements

The master of science degree with a major in either speech-language pathology or audiology requires a cumulative GPA of 3.0 or greater in order to graduate. In addition, successful completion of comprehensive examinations. All degree requirements must be completed within 48 months from the beginning of the first quarter in which a full-time student is enrolled in the department. Students must complete the number of quarter hours required by the program.

Professional Certification

Programs in communication disorders and sciences provide the academic background necessary to begin the ASHA clinical fellowship year and for the national certification examinations.

Thesis

The faculty's commitment to research and the belief that an appreciation of scientific matters is valuable to the clinical process provides the basis for the optional master's thesis research. The complete thesis policy is found in the department student manual.

Practicum

Supervised clinical practicum occurs each quarter during the seven-quarter program. A minimum of 37 quarter hours of clinical practicum is required. Enrollment in each quarter of

practicum is contingent upon satisfactory completion (grade of B or better) of the previous quarter's practicum. These experiences include those at selected sites inside and outside of the Medical Center. Opportunities provide experiences with a full range of speech, language and hearing disorders. Students are able to express their preferences with regard to practicum sites outside the Medical Center.

Educational Activities

The Department of Communication Disorders and Sciences provides professional training in speech-language pathology and audiology. Its programs are two of the few in the United States that base the education of speech pathologists and audiologists on the facilities and opportunities offered by an academic health center. In addition to teaching and supervisory responsibilities in the College of Health Sciences, faculty members are involved in educational programs of residents and students in the college of medicine. Faculty participate in grand rounds for various medical specialties and provide in-service programs for staff at Presbyterian-St. Luke's Hospital and at the Johnston R. Bowman Center for the Elderly.

Research Activities

Faculty are involved in independent and collaborative research in the areas of audiology, hearing science, and speech-language pathology. Faculty publish in professional journals and present at national and state meetings. Students are encouraged to participate in the research process, including development of hypotheses, data collection, and presentation or publication of results.

Service Activities

The faculty provide a full range of diagnostic and therapeutic services to a large clinical population, both inpatients and outpatients. In addition, faculty actively participate in professional affairs on the local and national level. Students and faculty participate in health fairs and screenings throughout the year.

Department of Health Systems Management

Philosophy

The Department of Health Systems Management was formally established in 1975. The department's goals are to provide a graduate program for future health systems managers; to provide postgraduate and continuing education for health systems managers; and to conduct research in order to validate and to further innovation in the management of health care services.

Admission Requirements

Prospective students should have a baccalaureate degree from an accredited college or university with basic course work in financial accounting and statistics. Courses in macro- and microeconomics and computer science are strongly recommended. Applicants are also required to submit scores from either the GMAT or the GRE and three confidential letters of recommendation.

Curriculum

Comprised of six academic quarters, the curriculum is designed to instruct students in the current theory and practice of health services management including the study of organizational behavior, quantitative and analytical techniques, planning, finance, and human resources management. The structure of the curriculum allows students the opportunity to apply managerial principles in real world learning environments and to design and conduct applied research projects.

Curriculum content focuses on:

- an understanding of health services administration through a study of health economics and medical sociology
- knowledge of individual social and environmental determinants of health, disease, and disability through a study of health measurement, patterns and characteristics of illness, health promotion, and disease intervention

- an understanding of management and administrative skills and their application to health services organizations through a study of organizational behavior, quantitative methods, budgeting, finance, information systems, law, planning and policy development, marketing, manpower planning, personnel management, labor relations, multi-institutional arrangements, long-term care, ambulatory care, and managerial decision making

Academic Progression. All graduate students in the Department of Health Systems Management must achieve a grade point average of 3.0 (A = 4.0) in all course work each quarter to maintain satisfactory academic status. Academic probation results when a student's grades fall below a quarterly or cumulative grade point average of 3.0 or when a student receives a grade of F in any course. Any health systems management student may be placed on academic probation when the student's academic deficiencies are significant as judged by the Committee on Academic Progress and Promotions. A student on academic probation shall remain so until he/she has remedied all deficiencies and met all requirements established by the committee for removal from academic probation.

Academic Policies

(Additional policies are listed in the College of Health Sciences and in the Academic Information sections.)

Enrollment. The curriculum is offered on a full and a limited part-time basis. A full-time student is one who is registered for 12 or more hours of course credit per quarter leading toward a master's degree with a major in health systems management. The part-time student is one who is registered for four or more hours of course credit per quarter. The program must be completed within a five year time limit.

Curriculum: Health Systems Management

Fall Quarter	Year I	Quarter Hours	Fall Quarter	Year II	Quarter Hours
HSM 501	Prof. Skills Development	1	HSM 501	Prof. Skills Development	1
HSM 502	Health Care Organization	3	HSM 536	Corporate Finance	4
HSM 506	Medical Sociology	3	HSM 567	Managed Care	3
HSM 551	Information Systems I	4	HSM 597	Master's Project	4
HSM 557	Quality in Health Care	1		Elective	3
HSM 576	Ethics for Hlth Care Managers	1		(Choose one from the list)	
HSM 582	Intermediate Statistics	4			
Winter			Winter		
HSM 515	Human Resources Mgmt. I	4	HSM 532	Finance II	3
HSM 533	Health Economics	4	HSM 561	Strategic Planning/Marketing	4
HSM 545	Organizational Analysis	4	HSM 597	Master's Project	4
HSM 571	Operations Management	4		Elective	3
				(Choose one from the list)	
Spring			Spring		
HSM 507	Epidemiology	4	HSM 539	Finance Seminar	3
HSM 531	Finance I	4	HSM 546	Adv. Organizational Analysis	4
HSM 543	Health Law	4	HSM 595	Graduate Seminar	1
HSM 552	Information Systems II	4		Electives	6
				(Choose two from the list)	
			TOTALS Required hours 78		
			Elective hours 12		
			Minimum Hours Required for Graduation 90		

Elective courses. These three credit electives are listed by the term they are generally offered.

Fall

HSM 534 Applied Economics
HSM 560 Health Care Policy

Winter

HSM 522 Multiinstitutional Arrangements
HSM 556 Group Practice Management
HSM 572 Adv. Operations Management

Spring

HSM 516 Human Resources Mgmt. II
HSM 535 Applied Economics II
HSM 553 Advanced Information Systems
HSM 555 Health Care and the Elderly
HSM 558 Ambulatory Care Mgmt.
HSM 590 Topics in Health Systems Mgmt.

Graduation Requirements. To be eligible to graduate, a student must have successfully completed all the academic requirements of the Department of Health Systems Management and achieved a minimum cumulative grade point average of 3.0. In order to receive a master of science degree with a major in health systems management, the student must have earned a minimum of 90 quarter hours of credit. Prior to graduation, the Committee on Academic Progress and Promotions shall recommend to the entire department faculty for its approval those students who are to be awarded degrees.

Educational Activities

Members of the faculty have represented the institution by presenting papers or serving as members of the program faculty in symposia or seminars sponsored by the American Hospital Association, the Hospital Financial Management Association, the American College of Hospital Administrators, the Hospital Management Systems Society, the Illinois Hospital Association and many other professional groups. Each year the Department of Health Systems Management and the Center for Health Management Studies sponsor the Annual Rush Invitational Seminar on Hospital and Health Affairs. This past year's symposium, "Managed Care Markets: Who is the Competition?" was attended by a record number of health care executives from across the nation.

Research Activities

The Center for Health Management Studies is the focus for the ongoing development of health services research in the Department of Health Systems Management and the Medical Center. Research enables Rush to continue its national prominence as an innovator and pioneer in health care delivery. The output of the

department's health services research can most effectively contribute to the evolution of public policy and to an environment of practice supportive of an efficient and effective health care delivery system. On occasion, students are given the opportunity to participate as research assistants to further develop their skills and perspectives.

The department sponsors monthly research seminars that provide a forum for health systems management faculty to present and discuss their research activities with interested students, faculty and practitioners from throughout the community.

Service Activities

Members of the faculty of the Department of Health Systems Management are actively involved in the operation of the Medical Center through such capacities as hospital administrator, health care planner, University administrator, financial manager, clinician, corporate and labor attorney, researcher, and data processing manager.

Individuals on the faculty, depending on their areas of expertise, frequently are asked to serve as consultants to hospitals, planning bodies, and other organizations.

Additional contributions to the health care field also include serving as faculty in continuing education programs for health service administrators sponsored by the American Hospital Association, the Hospital Financial Management Association, the American College of Health Care Executives, the Hospital Management Systems Society and the American Association of Medical Colleges.

Department of Medical Physics

Philosophy

The Department of Medical Physics offers a program of study and research leading to the Master of Science degree. The faculty members of the division are active in theoretical and experimental research in medical physics and its clinical applications. The diversity of interests of the faculty allows the department to offer a program that can satisfy the interests and needs of students in several areas of medical physics: dosimetry, imaging applied to medicine, radiation sources, physics of radiation therapy, physics of diagnostic radiology, physics of nuclear medicine and radiation protection.

Career Opportunities

Medical physics is concerned with the application of the concepts, methods and forces of physics to the diagnosis and treatment of human disease. Medical physicists work at the forefront of medical science, often in hospitals with or without associated academic programs. They provide clinical physics services, carry out research, give direct assistance to their medical colleagues and help train future medical physicists, resident physicians, medical students and medical technologists.

The Program

The master of science with a major in medical physics program is offered through the Department of Medical Physics. In order to produce well-rounded, highly competent medical physicists, the curriculum provides training in the physics aspects of radiation therapy, diagnostic radiology, nuclear medicine, radiation protection, and radiobiology, as well as in such subjects as anatomy, physiology, and computer science. The recommended curricular sequence follows.

Admission Requirements

The successful applicant must meet the following requirements:

- hold a bachelor of science degree with a major in physical science with a minor in physics from an accredited college or university
 - complete one year of college chemistry with laboratory. This requirement may be satisfied within the M.S. program.
 - earn an cumulative grade point average (GPA) of 3.0 (A = 4.0) in college work
 - earn a cumulative science GPA of at least 3.0 in college work.
 - submit Graduate Record Examination (GRE) results achieved within the last three years. It is recommended that results from the physics subject examination also be submitted.
 - foreign students submit Test of English as a Foreign Language (TOEFL) results.
 - supply three letters of recommendation from previous college or university instructors.
 - provide evidence of prior success in pursuing independent study.
 - write a description of his/her scientific research interests.
- Applicants holding a baccalaureate degree but with no graduate training should apply for the fall quarter to insure appropriate course sequencing. Such applications will be accepted until February 15 with notification to the applicant of admissions committee action no later than May 15. Later applications may be accepted on a space available basis.
- Students with graduate research and medical physics experience may apply for admission to begin study any quarter of the year. Such applications should be made at least two months prior to the start of classes for the quarter in question.

Curriculum: Medical Physics

Fall Quarter	Year I	Quarter Hours	Fall Quarter	Year II	Quarter Hours
MPH 457	Radiation Safety of Radioactive Materials	2	MPH 463	MR Imaging	2
MPH 461	Diagnostic Radiation Physics	3	MPH 506	Clinical Physics Practicum	4
MPH 565	Transfer Function	2	MPH 590	Seminar	1
MPH 501	Radiation Physics	4		Physiology	3
MPH 590	Seminar	1		Elective	2
		12			12
Winter			Winter		
MPH 458	Radiation Detection & Meas.	2	MPH 505	Radiation Physics Lab	3
MPH 502	Radiological Physics I	4	MPH 506	Clinical Physics Practicum	4
MPH 505	Radiation Physics Lab	2	MPH 590	Seminar	1
MPH 590	Seminar	1	MPH 598	Research	2
	Elective	3		Elective	2
		12			12
Spring			Spring		
MPH 471	Physics of Nuclear Medicine I	3	MPH 505	Radiological Physics Lab	5
MPH 503	Radiological Physics II	4	MPH 590	Seminar	1
MPH 531	Radiation Biology	3	MPH 598	Research	6
MPH 590	Seminar	1			12
	Elective	2			
		13			
Summer					
ANA 592	Anatomy	4	Minimum Hours Required for Graduation 80		
MPH 491	App. Comp. Med. Physics	3			
MPH 506	Clinical Physics Practicum	3			
MPH 590	Seminar	1			
	Elective	3			
		14			

Academic Policies

(Additional policies are listed in the College of Health Sciences and in the Academic Information sections).

Grading. All medical physics courses will be graded using letter grades except MPH 505, 506, 590, 597, 598 which are graded pass/no pass (P/N).

Academic Progression. The faculty reserves the right to request the withdrawal of any student whose conduct, health or performance demonstrates lack of fitness for continuance in a health profession. Any such student not voluntarily withdrawing will be dismissed from the

University.

Only grades of A, B, and C may fulfill degree requirements in all required courses. Students will be considered in good standing at Rush University unless placed on academic probation.

Academic probation is assigned to a student who earns a quarterly GPA between 2.0 or 2.99 inclusive or whose cumulative grade point average falls below 3.0. Full-time students placed on probation must earn a cumulative GPA of 3.0 or greater at the end of the next consecutive quarter. Part-time students placed on probation must earn a cumulative GPA of 3.0 or greater by the end of the next two consecutive quarters.

A student who earns a quarterly grade point average below 2.0 will be dismissed from the University. A student who earns a grade of D or F in a required course must repeat the course. Failure to earn a grade of C or better in a repeated course will result in dismissal from the University. A student who earns a grade of D or F in two or more required courses will be dismissed from the University. In a repeated course, the new grade will replace the earlier D or F grade in the cumulative GPA.

Students placed on academic probation will be so notified by the department chairperson following a meeting of the Student Progress Review Committee. The letter will state the reasons for placing the student on academic probation and the specific requirements that must be met by the student to reestablish good standing.

Full-time and Part-time Enrollment. Although the faculty recommends full-time enrollment to maximize the opportunities available to students, part-time enrollment for all, or part, of the program may be arranged.

Graduation Requirements. The master of science with a major in medical physics program requires a cumulative grade point average of 3.0 or greater to graduate. All degree requirements must be completed within five calendar years from the beginning of the first quarter in which the student is enrolled in the program. The minimum number of quarter hours required for graduation is 80. The quarter hour requirement is fulfilled by registration in required courses plus elective courses. The required courses are:

MPH 457, 458, 461, 471, 501, 502, 503, 505, 506 (A,B,C), 531, 590, 598, 1 course in anatomy (ANA 592), 1 course in physiology, and 1 course in electronic circuits.

Each student must develop and carry out a research project which culminates in the writing of a thesis.

At the end of the first year, the student must take and pass a qualifying examination based on selected basic principles of physics, therapeutic and imaging physics, radiation protection, transfer function analysis, and current topics in medical physics. The examination will include both written and oral components. Passing this examination qualifies the student to continue work toward the master's degree. A final examination in defense of the thesis will be

given at the completion of thesis research. Failure to pass the final examination will require determination by the faculty whether the student will be granted a second and last opportunity. Upon such recommendation, a second examination may be scheduled at a mutually determined time within nine months of the initial examination.

Professional Certification

This program provides the basis for certification as a radiological physicist by the American Board of Radiology and the American Board of Medical Physics.

Educational Activities

In addition to providing educational and research experiences for students in the master's program, the medical physics faculty members, most of whom hold joint faculty appointments in Rush Medical College, participate in the education of medical and other health professions students and residents.

Service Activities

Most faculty members are practitioner/teachers who provide patient care services through the facilities of Rush-Presbyterian-St. Luke's Medical Center. Several faculty members also serve as medical physics consultants to a network of hospitals and health care centers in metropolitan Chicago.

Research Activities

Faculty members are active in theoretical and experimental research in medical physics and its clinical applications. This research includes the study of basic mechanisms by which radiation transfers energy to biological and chemical materials; the development of new techniques for directing and measuring various radiations used in the detection, diagnosis, and treatment of cancer; the application of radioactive tracers to diagnosis and to the study of metabolic processes; and the optimization of physical parameters for specific studies in diagnostic medical imaging including radiology, computerized radiography and tomography, radionuclide imaging, dosimetry in radiation protection, and radiobiology.

Medical Technology Program

Philosophy

The contribution of medical technology to the patient and to the health care delivery system is primarily one of diagnostic services. The increasing number and wide range of diagnostic tests performed by medical technologists requires frequent adaptation to new laboratory methodologies and instrumentation. Clinical medicine requires today's medical technologist to be a highly qualified professional who is willing and able to expand and extend his/her theoretical knowledge and technical skills. Today's professional technologist must develop technical expertise as well as teaching and administrative competence. The technologist must be able to adapt to rapid changes in the field while maintaining an optimal level of performance. As a member of the health care team, the medical technologist must have a basic understanding of the role of other health practitioners in order to function effectively and best possible care to the individual and community. Although work in medical technology often does not place the practitioner in direct contact with the patient, the technologist must maintain compassion and empathy and accept the the patient's welfare as the highest priority.

It is the aim of the baccalaureate program in medical technology to educate technologists to meet effectively the changing needs of laboratory medicine.

Educational Goals

1. To graduate competent practitioners who possess the skills and knowledge to function at an optimal level in various clinical laboratory settings.
2. To graduate competent laboratorians who can meet the changing needs of the profession.
3. To foster and develop critical thinking and problem solving abilities in our students.
4. To instill a high degree of professionalism in our students.
5. To instill and foster a high degree of professional ethics in our students.
6. To create the awareness of the importance of continuing education and professional association participation in our students.

Specific Program Outcomes. Graduates are expected to demonstrate entry level competence in the following areas:

1. Know procedures for proper specimen collection and processing of biological specimens.
2. Know all safety regulations for the proper handling of chemical and biological specimens.
3. Be able to perform, with a high level of competence, analytical tests on body fluids, cells and blood products.
4. Integrate and relate data generated by the various clinical laboratory departments while making judgements regarding possible discrepancies and adherence to quality control protocols.
5. Evaluate the adequacy with which decisions are made from clinical data.
6. Establish procedures for, and perform preventive and corrective maintenance on, equipment and instruments.
7. Evaluate new techniques and incorporate new procedures into the daily operation of the laboratory.
8. Demonstrate professional conduct and interpersonal skills with patients, fellow employees, other health-care providers and the general public.

Admission Requirements

Students wishing to apply to the medical technology program may do so in one of two ways. Students may attend either an accredited college of their choice or one of the schools affiliated with Rush University that offers preparation for medical technology. All applicants must complete the preprofessional requirements. Applicants from institutions that have no affiliation with Rush should apply to the medical technology program by March for admission in the fall. Students at an affiliated school are recommended for admission to the Rush program by their health careers advisor at the affiliated school.

In addition to fulfillment of academic requirements, a personal interview, conducted by members of the Admission Committee, is required for admission into the program. Interviews are behaviorally oriented. Questions focus on commitment, problem solving ability, team interaction and initiative. Applicants are asked for life experience situations in which these behavioral characteristics are demonstrated. The interview takes about one hour. At the time of the interview, each applicant is also asked to write a short essay. Essays are evaluated for grammar, spelling, content, and overall quality of written

communication. Applications are ranked on the basis of grades in prerequisite courses, references, interview results and the written essay.

Of the 17 schools affiliated with Rush University, the following offer preparation for medical technology:

Beloit College, Beloit, Wisconsin
Carleton College, Northfield, Minnesota
Colorado College, Colorado Springs, Colorado
Cornell College, Mt. Vernon, Iowa
Fisk University, Nashville, Tennessee
Grinnell College, Grinnell, Iowa
Illinois Institute of Technology, Chicago, Illinois
Knox College, Galesburg, Illinois
Lake Forest College, Lake Forest, Illinois
Lawrence University, Appleton, Wisconsin
Monmouth College, Monmouth, Illinois
North Central College, Naperville, Illinois
Ripon College, Ripon, Wisconsin
Rosary College, River Forest, Illinois

Curriculum - Generalist

Preprofessional Program. The prehealth portion of the medical technology program is taken at an affiliated college or other accredited college or university and requires two or three years of study, depending upon the college. These years are devoted to preparing the scientific foundation upon which the practice of medical technology can be built. The first year emphasizes courses in biological, physical, and behavioral sciences, with options in the humanities. The succeeding prehealth years are used to increase depth in the sciences as they relate more specifically to health fields and to enhance personal experience by a broad choice of electives in the humanities.

Specific course offerings and requirements may vary from campus to campus due to curriculum offerings, scheduling, and course content. The following listing suggests the kinds of courses that normally are required before a student comes to the Rush campus:

- Chemistry (including Organic and Quantitative Analysis)
- Biology (including Microbiology)
- Mathematics (Algebra and Statistics)

Professional Program. In the junior and senior years the student integrates the theory of clinical medicine with the practice of clinical laboratory procedures, learning basic theory and skills in

hematology, clinical chemistry, immunology, and clinical microbiology in the junior year, going on to more advanced courses in those areas in the senior year. Senior students apply basic concepts as they rotate through the laboratories of Presbyterian-St. Luke's Hospital and affiliated hospitals. In addition, students are prepared to fill supervisory and teaching positions through courses in management and education.

Academic Progression. The faculty reserves the right to request the withdrawal of any student whose conduct, health or performance demonstrates lack of fitness for continuance in a health profession. Any such student not voluntarily withdrawing will be dismissed from the University.

High academic performance in required courses is expected. Undergraduate students will be considered in good standing at Rush University unless placed on academic probation.

An annual cumulative grade point average (GPA) of at least 2.0 is required to be eligible to continue in the program. Cumulative grade point averages will be reviewed after each quarter.

Academic probation is assigned to any student who receives a quarterly grade point average below 2.0 or whose cumulative grade point average falls below 2.0. Students placed on probation have two quarters in which to regain the status of good standing. Failure to do so will result in dismissal from the University. Medical technology students may receive no more than one D in any course in each year to remain in the program. An F grade in any of these courses will result in dismissal.

Work in all practicum courses must be at the C level or better. Any work in practicum courses below the level required for a C grade will result in an F grade. Courses in which an F grade is received may be repeated only once with the new grade replacing the F in the cumulative GPA. A second grade of F in a practicum course will result in dismissal. Any student who needs to repeat a practicum course must do so within one year.

Comprehensive Examination. All students must take and pass a comprehensive examination at the end of the senior year in order to graduate from the medical technology program. Students who fail the exam must retake the exam until they pass. This may require non-credit registration and payment of the enrollment fee.

Curriculum: Medical Technology Generalist

Fall Quarter	Junior Year	Quarter Hours	Fall Quarter	Senior Year	Quarter Hours
CLS 301	Laboratory Techniques	5	CLS 431	Molecular Techniques	1
CLS 302	Clinical Chemistry I	3	HSM 501	Health Care in America	1
CLS 311	Clinical Hematology I	6	MTK 401	Point of Care Testing	1
MTK 311	Professional Development I	1	MTK 402	Quality Monitoring	2
		<u>15</u>	MTK 421	Practicum in Clinical Chem.	6
			MTK 446	Specialty Practicum	4
			MTK 411	Professional Development IV	1
					<u>16</u>
Winter			Winter		
CLS 303	Clinical Chemistry II	3	CLS 411	Clinical Hematology II	2
CLS 321	Clinical Microbiology	5	MTK 403	Laboratory Management	2
CLS 331	Clinical Immunology	5	MTK 405	Clinical Laboratory Information Systems	2
MTK 301	Information Science	2	MTK 422	Practicum in Hematology	6
MTK 312	Professional Development II	1	MTK 425	Practicum in Immuno-hematology	6
		<u>16</u>	MTK 412	Professional Development V	1
					<u>19</u>
Spring			Spring		
CLS 304	Clinical Chemistry III	3	MTK 405	Communications	2
CLS 312	Body Fluid Analysis	4	MTK 423	Practicum in Immunology & Molecular Diagnostics	6
CLS 322	Parasitology, Mycology & Virology	4	MTK 424	Practicum in Microbiology	6
CLS 332	Immuno-hematology	4	MTK 426	Patient Care Techniques	2
MTK 313	Professional Development III	1	MTK 441	Research Seminar	2
		<u>16</u>	MTK 413	Professional Development V	1
					<u>19</u>
Courses may not be offered in sequence listed but all are required courses			Total Required Hours		101
			Prehealth Hours		90
			Minimum Hours Required for Graduation		<u>191</u>

Curriculum and Admission - Categorical Programs

Candidates must have a baccalaureate degree from an accredited U. S. college or university in biology or chemistry. Those choosing chemistry must have 24 semester or 36 quarter hours of undergraduate chemistry courses. Hematology and immunology require 30 semester or 45 quarter hours in biology. The microbiology program requires 20 semester or 30 quarter hours of biology credits. Students educated outside the United States must have a bachelor's degree and have successfully

completed a minimum of one year's college level work in a science curriculum at a U. S. accredited college or university. All transfer coursework from other than U. S. colleges or universities is subject to approval by Rush University.

The Program. Candidates can specialize in categorical programs in hematology, clinical chemistry, immunology or microbiology, and at the completion of the program, become certified by the American Society of Clinical Pathologists and/or by the National Certification Agency for Medical Laboratory Personnel as categorical specialists in one of these areas. Each

categorical program is built around a core curriculum and individually designed didactic and practical courses. All course work carries transferable college credit. The program length is nine months and includes extensive practical experience in the clinical laboratories of Rush-Presbyterian-St. Luke's Medical Center.

Categorical Curriculum. Students in the categorical program take the following courses:

CLS 301, 333, 431

MTK 301, 401, 402, 403, 404, 405, 441, 426

MTK 411, 412, 413 and 12-18 quarter hours of categorical clinical rotation courses in their chosen category.

Certificate holders may continue in the generalists program and with one additional academic year, complete requirements for the bachelor of science degree with a major in medical technology.

Academic Policies

(Additional policies are listed in the College of Health Sciences and in the Academic Information sections.)

Full-time Enrollment. The medical technology professional program requires full-time enrollment from September to June. In the senior year students spend 40 weeks in the clinical courses.

Certification. The comprehensive technical curriculum at Rush University prepares the student to enter the practice of medical technology. Graduates are eligible to take the National Certifying Examination given by the American Society of Clinical Pathologists, and, upon passing the examination, they become certified as medical technologists, MT(ASCP). Graduates are eligible to take any of the other national certifying examinations if they so desire.

Graduation Requirements. The bachelor of science degree with a major in medical technology requires a minimum of 180 quarter hours. This includes at least 90 quarter hours earned as a lower division student at an affiliated school or as a transfer student. A minimum of 45

quarter hours of academic credit shall be earned as an upper division student in academic residence at Rush University.

Candidates for the bachelor of science degree must earn a 2.0 cumulative grade point average in all computed upper division credits taken at Rush University.

Participation in cap and gown at commencement exercises is expected of all graduates.

Educational Activities

The faculty of the section is responsible for providing both the didactic course work and the clinical experiences necessary for students to complete successfully all degree requirements for the bachelor of science with a major in medical technology. The program is accredited by the American Medical Association's Committee on Allied Health Education and Accreditation (CAHEA).

Research Activities

Faculty members of Medical Technology engage in either technical or educational research. Areas include biochemistry, education, hematology, hospital administration, immunohematology, immunology, and microbiology.

The Section of Medical Technology supports and is involved in the administration of the Research and Teaching Laboratory. The primary function of the laboratory is to provide research facilities and equipment in support of faculty and student research projects.

Service Activities

Faculty members are actively involved in the clinical laboratories of Rush-Presbyterian-St. Luke's Medical Center, maintaining active research, supervisory, and clinical positions in their specialty areas. Several faculty members hold conjoint appointments in Rush Medical College and provide the laboratory medicine courses for the medical college curriculum.

Perfusion Technology Program

Philosophy

The Perfusion Technology program aims to provide students with both the scientific knowledge as well as the clinical experience in order to make them effective and successful perfusion technologists. The field of perfusion technology is a challenging and expanding profession. The perfusion technologist of today must be able to meet the daily demands of the operating room, be able to adapt to new technologies and uses for the extracorporeal circuit and be part of a profession growing beyond its traditional role in cardiovascular surgery and now encompassing other surgical and non-surgical specialties requiring the use of extracorporeal circuits, support devices or blood salvaging capabilities.

Admission Requirements

All applicants must have satisfactorily completed a minimum of 90 quarter hours in the pre-health curriculum at an accredited college or university. An emphasis on the sciences is preferred and some medical experience is desirable. Rush University does not offer the pre-health curriculum on its campus. No transfer credit is awarded for required coursework in which a grade of less than C has been earned. Required courses must be taken for a letter grade rather than a pass/fail option.

Suggested pre-health curriculum:

<u>Courses</u>	<u>Quarter Hours</u>
Mathematics	6
Biology	12
Chemistry	12
Physics	6
Social Sciences	6
Humanities	12
Electives	36

In addition, prospective students must also submit a letter signed by a cardiac surgeon or chief perfusionist verifying that they have witnessed a minimum of two (2) open heart procedures.

Curriculum

The curriculum in perfusion technology combines scientific study with clinical experience. Students take courses in anatomy, physiology, pathology and pharmacology, often with students of Rush Medical College and the College of Nursing. The clinical experience includes participation in adult and pediatric open heart procedures at Presbyterian-St. Lukes Hospital and at affiliated hospitals.

The curriculum begins in the fall quarter and covers seven quarters, including one summer session (see curricular outline). Faculty include experienced, board certified perfusion technologists and cardiovascular and transplant surgeons, in addition to specialists from anesthesia, nursing, medical technology and other related health professions. A unique feature of the program is the emphasis on management techniques as they relate to the administration of the hospital perfusion department. Graduates of the program will be qualified to sit for the certification examination of the American Board of Cardiovascular Perfusion.

Academic Progression. The faculty reserves the right to request the withdrawal of any student whose conduct, health or performance demonstrates lack of fitness for continuance in a health profession. Any such student not voluntarily withdrawing will be dismissed from the University.

High academic performance in required courses is expected. Undergraduate students will be considered in good standing at Rush University unless placed on academic probation.

Academic probation is assigned to any student who earns a quarterly grade point average (GPA) below 2.0 (A=4.0) or whose cumulative grade point average falls below 2.0. Students placed on probation have two quarters in which to regain the status of good standing. Failure to do so will result in dismissal from the University.

Academic Policies

The Perfusion Technology program requires full-time enrollment beginning with the fall quarter of the junior year and continuing through the spring quarter of the senior year, a total of seven consecutive quarters of classroom work and clinical experience.

Suggested Perfusion Technology Curriculum

Fall Quarter		Junior Year	Quarter Hours
HHV 510	Health Care in America		1
PRF 301	Introduction to Perfusion Technology		2
PRF 331	Anatomy		4
PHY 555	Physiology of Cellular Homeostasis I		3
PVM 541	Biostatistics I		4
Winter Quarter			
PRF 304	Heart-Lung Machine Fundamentals		3
PRF 333	Fundamentals of Pharmacology		3
PHY 556	Physiology of Cellular Homeostasis II		3
PRF 311	Junior Seminar I		3
Spring Quarter			
PRF 302	Pathophysiology of Cardiopulmonary Bypass I		4
PRF 305	Extracorporeal Circuit Fundamentals		4
PRF 381	Perfusion Technology Research		2
PRF 312	Junior Seminar II		3
Summer Quarter			
PRF 303	Pathophysiology of Cardiopulmonary Bypass II		4
PRF 431	Clinical Experience I		8
PRF 313	Junior Seminar III		3
Fall Quarter		Senior Year	
PRF 401	Perfusion Technology I		3
PRF 432	Clinical Experience II		8
PRF 411	Senior Seminar I		3
Winter Quarter			
PRF 402	Perfusion Technology II		3
PRF 433	Clinical Experience III		8
PRF 412	Senior Seminar II		3
Spring Quarter			
PRF 403	Perfusion Technology III		3
PRF 434	Clinical Experience IV		8
PRF 413	Senior Seminar III		3
Total Perfusion Technology credits			96
Pre-health credits			90
Total hours for B.S. degree			185

Educational Activities

The faculty of the department is responsible for providing both the didactic course work and the clinical experiences necessary for the Bachelor of Science degree with a major in perfusion technology. The program is accredited by the Accreditation Committee - Perfusion Education (AC-PE) of CAAHEP.

Service Activities

Faculty members are board certified perfusionists actively involved in the daily clinical activities of the Department of Extracorporeal Services.

Department of Occupational Therapy

The Department of Occupational Therapy offers a graduate program which prepares the student for unique contributions to the field of occupational therapy. This professional-level program is designed for individuals with baccalaureate degrees in other fields who are seeking to become occupational therapists at the graduate level.

Philosophy

The faculty of the graduate program in occupational therapy emphasizes the educational approach which integrates occupational therapy and didactic material with clinical instruction and practice. The purpose of this educational philosophy is to allow the student maximum opportunity for the highest levels of integration of content and understanding of rationale for instruction. This philosophy is fostered through such concurrent sequencing of theory and clinically based experience that the student is able to relate to either or both environments depending upon which best facilitates the learning process. The early and continuous collaboration between the theoretical and the clinical learning environments allows for the development of a collegiality between faculty and students. Through such a relationship, the student's personal growth and opportunities for independent thinking are fostered. Since the program is concerned with the student as an individual, the relationship with faculty provides the student with a variety of individualized learning options and experiences within diversified work environments.

Professional Description

Educational Orientation. The professional graduate program at Rush University is designed for the student who has acquired a variety of life experiences through previous educational, vocational, and avocational activities. The program facilitates the incorporation of these life experiences into the educational activities of the program. The educational philosophy utilized in the program which best addresses these spheres is based on theories of adult learning. By basing the program on adult learning theories, it is possible to build on the students' past, connect it to their activities of the present, and predict a future of competent, capable responses to the needs of the profession. The program is designed to enable the student to learn not only

the content and theories of occupational therapy, but also the process of utilizing the multiple resources of the learning environment, including teachers and peers. A series of carefully designed learning experiences, occurring within and outside the classroom, promote independence in conjunction with collegial interaction, problem solving and clinical reasoning, and analysis and synthesis of information. The graduate is a competent therapist who has maintained initial curiosity and has added to it through increased ability for creative thinking. Because of experiences in self-directed learning and in self-identification of needs, the graduate is able to be responsible and responsive to the needs of the profession. The graduate is a potential learner in the field who is able to work in the traditional settings of occupational therapy, but, more importantly, the graduate is flexible, autonomous, and informed so as to adapt to the practice of the field in nontraditional settings.

Professional Orientation. Since the Rush graduate will be prepared to work in a variety of traditional and nontraditional settings, his/her practice base is the result of broad experiences within the many arenas of occupational therapy. The graduates have the ability to add increasing amounts of depth and validation to their treatment programs as a result of their involvement and experiences with problem solving approaches to therapy. Given the combination of breadth and depth of knowledge and experience related to occupational therapy treatment, the primary strength of Rush University graduates will be their ability to function as highly resourceful clinicians. The role of the clinician is the core of all occupational therapy, as it was in the past and as it is projected for the future. The practitioner who is able to base treatment on established fact, internal and external resources, clinical reasoning and problem solving is the practitioner who will contribute to the credibility and viability of the profession. It is this type of practitioner who is expected to be the product of the Rush program. The graduates of the program are able to enter the clinical arena competent and confident of their clinical skills and also able to expand upon those skills as individual situations require it. This continuous process of assessing a situation and expanding upon it contributes to the ongoing personal and professional growth which is vital to occupational therapy. The role of the clinician, as

Curriculum: Occupational Therapy, Professional Curriculum

Summer Quarter	Year I	Quarter Hours	Fall Quarter	Year II	Quarter Hours
ANA 565	Gross Anatomy for Occupational Therapy	5	OCC 513	O.T. Interventions III	5
OCC 582	Computer Applications I	2	OCC 518	Interventions III Fieldwork	1
		<u>7</u>	OCC 533	Prin. /Methods of Supervision	3
			OCC 545	Management Issues in O.T.	4
			OCC 585	Research Proposal	3
					<u>16</u>
Fall			Winter		
HSM 510	Healthcare in America	1	OCC 595	Advanced Fieldwork I	1
OCC 461	Health and Development	3			<u>1</u>
OCC 463	Principles of Movement	3			
OCC 501	Activity Theory and Skills	4			
OCC 572	Computer Applications II	1			
PSY 501	Intro. to Psychopathology	3			
		<u>15</u>			
Winter			Spring		
NEU 501	Introduction to Neuroscience	4	OCC 596	Advanced Fieldwork II	1
OCC 465	Group Dynamics	3	OCC 598	Research Implementation (Thesis)	3
OCC 502	O.T. History and Philosophy	3			<u>4</u>
OCC 535	Issues & Perspectives in the Treatment of Children	3			
		<u>13</u>			
Spring			Summer		
OCC 506	Medical Conditions Seminar	3	OCC 590	Advanced Practice Seminar	6
OCC 510	Special Topics Seminar	3	OCC 598	Research Implementation (Thesis)	3
OCC 511	O.T. Interventions I	5			<u>9</u>
OCC 516	Interventions I Fieldwork	1			
OCC 541	Tests & Measurements in O.T.	4			
		<u>16</u>			
Summer					
HCE 581	Introduction to Research	4	Minimum required for graduation. Elective courses are optional and may be taken at the student's discretion.		
OCC 512	O.T. Interventions II	5			
OCC 517	Interventions II Fieldwork	1			
OCC 521	Etiology of Occupation	4			
OCC 531	Prin. & Methods of Education	2			
		<u>16</u>			

it is understood in this context, incorporates other major roles of the therapist. The involvement of the student in these other roles is another major strength of the program. The additional roles of educator, manager, and researcher cannot be separated from the practitioner's role. As the

Rush program is designed, the students have, in the context of their studies, the opportunity to explore the functions of the therapist as an educator, researcher and manager in terms of how they are employed by the practitioner.

Curriculum: Occupational Therapy - Part Time Schedule

Curriculum: Occupational Therapy - Full Time Schedule					
Summer		First	Year	Fall	
ANA 565	Gross Anatomy for O.T.	5	OCC 533	Activity Theory and Skills	4
OCC 571	Computer Applications I	2	OCC 461	Health and Development	4
		<u>7</u>			<u>8</u>
Winter		Spring			
NEU 501	Introduction to Neuroscience	4	OCC 506	Medical Conditions Seminar	3
OCC 502	O.T. History and Philosophy	3	OCC 510	Special Topics Seminar	3
OCC 572	Computer Applications II	1			<u>6</u>
		<u>8</u>			
Summer					
OCC 521	Etiology of Occupation	4			
OCC 531	Prin. & Methods of Education	2			
		<u>6</u>			
Fall		Second	Year	Winter	
HSM 510	Health Care in America	1	OCC 465	Group Dynamics	3
OCC 463	Principles of Movement	3	OCC 535	Issues & Perspectives in the	3
PSY 501	Intro. to Psychopathology	3	Treatment of Children		<u>6</u>
		<u>7</u>			
Spring		Summer			
OCC 511	O.T. Interventions I	5	HCE 581	Introduction to Research	3
OCC 516	Interventions I Fieldwork	1	OCC 512	O.T. Interventions II	5
OCC 541	Tests & Measurement in O.T.	4	OCC 517	Interventions II Fieldwork	1
		<u>10</u>			<u>9</u>
Fall		Third	Year	Winter	
OCC 513	O.T. Interventions III	5	OCC 595	Advanced Fieldwork I	1
OCC 518	Interventions III Fieldwork	1			<u>1</u>
OCC 533	Prin./Methods of Supervision	3			
OCC 545	Management Issues in O.T.	4			
OCC 585	Research Proposal	3			
		<u>16</u>			
Spring		Summer			
OCC 596	Advanced Fieldwork II	1	OCC 590	Advanced Practice Seminar	6
OCC 598	Research Implementation (Thesis)	3	OCC 598	Research Implementation (Thesis)	3
		<u>4</u>			<u>9</u>

Ninety-seven quarter hours required for graduation

Admission Requirements.

The applicant to the professional program in occupational therapy must have completed or must show evidence of the following in order to be considered for admission:

- a completed application accompanied by the \$25 non-refundable application fee
- a baccalaureate degree from an accredited college or university
- recommended undergraduate grade point average (GPA) of 3.0 (A = 4.0)
- Graduate Record Examination or Miller's Analogies Test results within the last five years
- prerequisite courses including statistics, human growth and development (birth through aging), psychology (two courses), sociology, anthropology, human anatomy and human physiology
- three letters of recommendation - one from an Occupational Therapist is preferred but not required
- official transcripts from every college or university attended by the applicant
- an essay on familiarity with occupational therapy either through observational, voluntary or work experience and how this experience has confirmed your choice of occupational therapy as a career
- selected applicants will be required to participate in an onsite visit which will include a faculty interview and writing sample exercise

Decisions regarding the acceptability for the applicant for the program will be made by the Admissions Committee. All application materials will be evaluated. Academic and non-academic factors, including extra-curricular activities, job and life experiences, etc., will be taken into consideration. Recognizing the need of occupational therapists to serve a population representative of diverse social, ethnic, cultural, and economic backgrounds, a goal of the Admissions Committee will be to select a class likely to meet these diverse needs.

Application Deadlines. The following dates are followed by the Admission Committee in processing applications and making its decisions. Applicants should adhere to these dates in order to receive favorable consideration:

- **September**
request letters of recommendation and official transcripts to be forwarded to the Office of Admissions Services (OCAS)
- **October 15**
application, including fee, postmark deadline

- **October 22**
application materials, except, test scores, must be received by OCAS. Applicants will be notified by mail if selected to interview.
- **Late November**
interviews at Rush scheduled
- **December 15**
GRE or MAT test results due in OCAS
- **February 1**
admissions decisions mailed out
- **March 1**
\$75 non-refundable confirmation fee required in OCAS to reserve place in the class

Academic Progression

The faculty reserves the right to request the withdrawal of any student whose conduct, health, or performance demonstrates lack of fitness for continuance in a health profession. Any such student not voluntarily withdrawing will be dismissed from the University.

Only grades of A, B, or C may fulfill degree requirements in all required courses. Students will be considered in good standing at Rush University unless placed on academic probation.

Academic probation is assigned to a student who earns a quarterly GPA between 2.0 and 2.99, inclusive, or whose cumulative GPA falls below 3.0. Full-time students placed on probation must earn a cumulative grade point average of 3.0 or greater at the end of the next consecutive quarter. Part-time students placed on probation must earn a cumulative GPA of 3.0 or greater by the end of the next two consecutive quarters.

A student who earns a quarterly GPA below 2.0 will be dismissed from the University. A student who earns a grade of D or F in a required course must repeat the course. Only two required courses may be repeated in the professional program. A required course may be repeated only once and the new grade will replace the earlier D or F grade. Failure to earn a grade of C or better in a repeated course will result in dismissal from the University. Only one D or F grade is allowed in a given academic year.

Students placed on academic probation will be so notified by the program director following a meeting of the departmental Progress and Promotions Committee at which academic progress has been discussed. The letter will state the reasons for placing the student on academic probation and the specific requirements to be met by the student to reestablish good standing.

Any deviation from these policies must be approved by the departmental Progress and Promotions Committee.

Academic Policies

(Additional policies are listed in the College of Health Sciences and in the Academic Information sections).

Full-time and Part-time Enrollment. The full-time academic program is a 27-month program covering nine academic quarters. A minimum of 97 credits is required for graduation. Instruction is provided by occupational therapy faculty and faculty members from other departments and colleges within the University.

Completion of all courses may take 39 months, on a part-time basis, but the final 12 months must be conducted on a full-time basis. To be considered part time, a student must be enrolled for a minimum of three credits and fewer than 12 credits per quarter. A minimum of 97 credits is required for graduation.

Scheduling. Courses are scheduled daily, Monday through Friday, with occasional weekend and evening classes. Course schedules vary from quarter to quarter.

Fieldwork/Practica. Preclinical experiences, i.e., part-time fieldwork, occur in conjunction with each of the occupational therapy intervention courses. Because the University is part of an academic health center, additional clinical experiences are arranged as components of other courses when necessary.

Six months (two academic quarters) of full-time fieldwork is a requirement of the program. Fieldwork experiences are arranged when possible by mutual agreement of students and faculty and occur at selected sites inside and outside of the Medical Center. Students may choose to extend the program by one quarter during which time they may have an additional fieldwork experience.

Accreditation and Certification. The Occupational Therapy program is accredited by the Accreditation Council for Occupational Therapy Education of the American Occupational Therapy Association. Graduates will be able to sit for the national certification examination for the occupational therapist administered by the National Board for Occupational Therapy (NBCOT). After successful completion of this exam, the individual will be an Occupational Therapist, Registered (OTR). In Illinois, occupational therapists must be licensed in order to practice and state licensure is based on the results of the NBCOT Certification Examination. This is true in many other states but specific requirements for licensure may be determined by contacting individual state licensing boards.

Graduation Requirements. The master of science with a major in occupational therapy requires a cumulative grade point average of 3.0 or greater to graduate. All degree requirements must be completed within 36 months for full-time students and 42 months for part-time students from the beginning of the first quarter in which the student is enrolled in the program. The minimum of 97 quarter hours is required for graduation.

Educational Activities

The Department of Occupational Therapy provides professional training for those seeking to become occupational therapists. The program prepares individuals to enter the professional community to practice the skills of occupational therapy, basing that practice on a full understanding of the foundations and principles of the field, and to engage in research and educational activities to enhance further the theory and practice of occupational therapy.

Faculty members within the Department of Occupational Therapy have teaching and supervisory responsibilities for the master of science degree program in the College of Health Sciences. In addition, faculty members are involved in integrating the theoretical and clinical aspects of occupational therapy through the implementation of programs with diagnostic and development groups in the various occupational therapy units of the Medical Center.

Research Activities

Members of the department are increasingly involved in identifying research projects in occupational therapy. Faculty members are investigating extended applications of occupational therapy techniques with developmental and diagnostic groups for which there is minimal documentation. These investigations include developing screening instruments and corresponding assessment tools for pediatric, geriatric, psychiatric, and physical rehabilitation populations; investigating alternative methods of occupational therapy interventions with identified populations; and determining the validity, reliability, and applicability of both evaluation and treatment approaches. Research activity is also occurring in areas related to departmental productivity and interdepartmental relationships. Other faculty are involved in educational research arenas which includes the study of admissions processes; clinical supervision; clinical student performances; and educational needs of practicing therapists.

Service Activities

Members of the department provide a full range of assessment and therapeutic services for a variety of diagnostic and developmental populations. Occupational therapy services cover acute and chronic inpatient and outpatient psychiatry; pediatrics, including neonatology,

developmental disorders, behavioral and emotional disorders, and learning disabilities; adult physical rehabilitation; geriatrics; and alcohol intervention programs. There are several subunits within each of these areas, and, within each unit, therapists utilize innovative occupational therapy interventions.

Department of Religion, Health and Human Values

About the Department

The Department of Religion, Health and Human Values provides the programs and resources for the study of a variety of topics including spirituality and health, ethics, medical humanities, death and dying, comparative religions, and research on religion and health. The department also offers educational programs which prepare students for careers in healthcare ethics and clinical chaplaincy. The Bishop Anderson Professorship was established almost twenty-five years ago to further research and teaching in the area of religion and medicine.

The Department has three major program areas: Spirituality and Health, Ethics, and Humanities. All faculty serve as active clinicians in at least one of these areas. Faculty include:

Laurel Arthur Burton, Bishop Anderson Professor and Department Chairperson

Beth Burbank, MTS, Assistant Professor

Russell Burck, Ph.D., Associate Professor

George Fitchett, D.Min., Associate Professor

JoAnn O'Reilly, M.A., M.A.R.S.,

Assistant Professor

Dolores Weins, M.Div. Instructor

The Program in Spirituality and Health

This program includes Clinical Pastoral Education (CPE), The Center for Spirituality and Health and a Certificate of Graduate Study in Spirituality and Health.

Clinical Pastoral Education is offered through this program. Faculty, residents and interns provide 24-hour-a-day, 365-days-a-year chaplaincy services to patients, families and staff.

The CPE program, accredited by the Association for Clinical Pastoral Education, provides basic, advanced, and supervisory education in spiritual care. While oriented to graduate theological students, pastors and members of religious orders, the program is open also to health professionals and lay persons who are interested in spiritual care in the midst of health crisis. Under faculty supervision, students carry responsibilities for spiritual care ministry on specified patient care units. Usually students use the program to prepare for careers in congregational ministries, chaplaincy or pastoral counseling.

This program also includes the Center for Spirituality and Health and The Certificate of Graduate Study in Spirituality and Health. The Center for Spirituality and Health is a joint project of the Department of Religion, Health and Human Values and the Department of Psychiatry. Academically the Center offers intern and practicum training to students in pastoral counseling. Clinically it provides services that approach mental health with the assumption that mental-well-being includes the dimension of spirituality.

The Certificate of Graduate Study in Spirituality and Health is a joint project with the College of Nursing and provides education and training for persons seeking to integrate spirit, mind and body, especially in community settings. The Certificate requires completion of four, 3-credit-hour courses, along with one integrative seminar each quarter.

The department has an active program of research in spirituality and health. Current projects include an examination of the role of religion and spirituality in quality of life and coping with illness for patients with depression, heart failure, and cancer.

The Program in Ethics

The Certificate of Graduate Study in Healthcare Ethics is taught by highly qualified, doctorally prepared ethicists most of whom are active as clinicians. The programs requires one year of part-time study to complete, and covers ethical theory, policy, and special topics (such as resource allocation, withholding or withdrawing life-sustaining technologies, etc.) all integrated with clinical practice. The certificate program meets one evening of each week for each of three academic quarters, and consists of HHV 501, 502, and 503. Admission is usually extended to active professionals in healthcare who have a minimum of a bachelors degree.

This program areas is also the location of the Ethics Consultation Service which provides 24-hour-a-day ethics consultation for the entire Medical Center.

The Program in Healthcare and Humanities

The University Program in Healthcare and Humanities provides a humanistic context for healthcare education. Courses such as literature and medicine, death and dying, and narrative theory are but a few offered through the program. The Campbell Lecture Series and the Campbell Scholars are two other dimensions of this program.

Special Activities

The Department of Religion, Health and Human Values is the home of *The CareGiver Journal*, a publication of the College of Chaplains, Inc., and *The Journal of Supervision and Training in Ministry*. In addition, members of the faculty have collectively published ten books and almost 100 chapters or articles.



THE GRADUATE COLLEGE

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John E. Trufant, Ed.D.
Dean, The Graduate College
Vice President, Academic Resources

"Great discoveries in health and medicine emanate from those who have the curiosity, the knowledge and the discipline to seek the truth. They must also have the wisdom to synthesize the meaning of their work and the skill to transmit it. Through collegiality in education and scientific investigation, The Graduate College faculty seeks to develop outstanding scholars who possess these critical characteristics."

The Graduate College

Mission

The Graduate College of Rush University is responsible for assuring excellence in the education and training of students in the basic biomedical science programs. The primary purposes of the College are as follows:

- To educate and train biomedical scientists to be creative investigators
- To advance biomedical and health care knowledge through basic, applied and clinical research via the education and training of Graduate College students
- To foster the development of faculty to work with Graduate College students

Philosophy

The Graduate College has been established to provide opportunities for students to work with selected members of the University faculty to earn graduate degrees with emphasis on the doctoral level in many of the sciences basic to health care. This limited goal, coupled with highly individualized programs, maximizes the students' opportunities for self-realization and the faculties' opportunities for sharing their scholarly development, expertise, and experiences on a personal basis. The organizational pattern allows a high degree of faculty and student participation in the educational affairs of the college. Each division's faculty members are active in basic biomedical research and education, providing opportunities for the advanced student to engage in a research program leading to the degree of doctor of philosophy.

The Graduate College faculty strives to provide individualized and flexible scholarly paths for its students. It avoids arbitrary imposition of uniformity and the encumbrance of unnecessary formality while simultaneously maintaining educational excellence. The faculty believes that such an environment permits independent thinking and high motivation for students' continued learning. Achievement of such a climate requires adaptation to the needs of students with the limitation in numbers of students implicit in such an approach.

Program

The Graduate College prepares students for the master of science and doctor of philosophy degrees. The doctor of philosophy is awarded in recognition of high achievement in a particular field of scientific research as evidenced by submission of a dissertation that demonstrates the power of independent investigation and contributes to the body of existing knowledge. An undergraduate record of scholastic excellence is an important background for The Graduate College experience.

The Graduate College also provides excellent research and training opportunities for advanced students who want to enroll concurrently in the The Graduate College and in Rush Medical College.

The process of application review includes a search for evidence of creativity and scholarly potential in the applicant. Nondegree students are not admitted with advanced degree objectives and are ineligible to become candidates for advanced degrees. Upon approval by a course director, any individual may audit a course.

In all cases, a student considering application for admission should first establish contact with the director of his/her choice of program to determine divisional requirements.

The student must meet all of the requirements for progress and graduation in the division's graduate studies program. In this regard individualized studies will be programmed to meet the student's need in achieving essential knowledge in preparation for these requirements.

Admission. The faculty of The Graduate College encourages diversity among the student population and, therefore, seeks to admit persons from various backgrounds. The Graduate College uses the following guidelines to evaluate candidates for admission. Individual divisions within the college may have additional requirements and criteria for admission. Applicants are encouraged to check with the division of interest first. The college's requirements are as follows:

1. All applicants must have earned at least a bachelor's degree or its equivalent.
2. A cumulative grade point average of 3.0 on a 4.0 scale, or equivalent, from the most recent degree is required.

3. All applicants (except those admitted to Rush Medical College) are required to take the Graduate Record Examination (GRE) aptitude test and have their scores submitted. A combined score for the verbal, quantitative and analytical sections of 1,500 is desirable.
4. All applicants whose native language is not English are required to take the Test of English as a Foreign language (TOEFL). A minimum score of 530 is required.
5. Each applicant is required to have three letters of recommendation submitted.
6. Specific admission requirements may be waived by the Graduate College Council. These will be addressed on a case by case basis.

Applicants who consider themselves to have special or unique qualities that make themselves strong candidates for graduate education are also encouraged to apply. Research and related job experience are valued highly in the admissions process and will be taken into account. Interviews with applicants are encouraged and can play a significant part in the admission decision. Beyond those measures, the faculty attempts to determine the applicant's motivation and potential for advanced study and a research career in the sciences. In many cases, an on-campus interview will be required.

Once The Graduate College Admissions Office has received all required documents, including the application fee, it forwards the application to the division for review. If the division does not wish to offer admission to the applicant, the division makes that recommendation to the dean, who notifies the applicant of the decision. If an applicant meets all the college and division admission criteria and the division agrees to admit the student, the admissions office is notified and the dean writes to the applicant. If an applicant does not meet the college criteria as outlined above but the division wishes to admit the student, the applicant's admission materials are sent to the members of The Graduate College Council, where a review of the applicant takes place and an agreement to accept or reject is made following a presentation of the candidate to the Council by the division. The dean then notifies the applicant of the Council's decision.

Organization. The Graduate College is one of four colleges of Rush University. In order to carry out its educational mission, the college is organized into divisions; each division represents a separate discipline and each is related to its

parent academic department. Currently, the college has the following divisions: anatomical sciences, biochemistry, immunology, medical physics, neurosciences, pharmacology, and physiology. Graduate study in microbiology, currently emphasizing virology, is offered within the division of immunology. One additional division has been formed in cell biology; however no degree is offered in this field. The primary goal of each division is to provide excellent graduate education in the sciences basic to medicine. The divisions of The Graduate College are flexible and responsive to changing needs and experiences in their disciplines. To that end, the divisions are headed by directors who serve for definite terms of appointment and whose reappointments are subject to periodic review. Each division reports through its director to the dean of The Graduate College and is a member of The Graduate College Council.

The Graduate College Council is the senior representative body of the college. Its membership includes all division directors, three faculty members elected annually at-large from different divisions and two students elected by the students annually. The dean serves as the chairman of the council. The council is responsible for setting policies for the admission of students; the formulation and adoption of general operating policies, standards and procedures of the college; the appointment of graduate college faculty; and the approval of those recommended for degrees. Although the dean and the Council hold ultimate responsibility for programs of The Graduate College, the divisions of graduate study retain significant authority in structuring and administering their programs.

The faculty of The Graduate College is drawn from the faculty of the other colleges of Rush University. No faculty member has a primary appointment in The Graduate College. No ranks are associated with appointment to the faculty, and all faculty in The Graduate College are designated as Members.

Doctor of Philosophy. The degree of doctor of philosophy (Ph.D.) is the highest earned degree conferred by Rush University. The Ph.D. is restricted to those scholars who have demonstrated superior ability in a recognized academic discipline.

While each division has identified requirements, the Ph.D. degree is not awarded following the completion of any specific number of formal courses nor on the basis of miscellaneous course studies and research. The entire Ph.D. program must be integrated and should be highly research-oriented. It should culminate in a work of literary and scholarly merit,

which is indicative of the candidate's ability to conduct original research in a recognized specialty. Ph.D. programs are directed by selected faculty who work closely with graduate students. In practice, each program is composed of formal courses, guided individual study in a chosen field or discipline, study in such cognate subjects as may be required by the candidate's advisory committee, and original research that serves as the basis of a scholarly dissertation.

Program of Study. Each student in The Graduate College shall have a written program of study that establishes clear expectations regarding the course of the student's graduate experience. The student's program should be developed and signed by the division director and the student no later than the end of the first quarter of enrollment. Changes may be made in requirements with the student's agreement or the agreement of the Division's Graduate Advisory Committee.

Thesis and Dissertation. A master's student must complete a thesis; a doctoral student must complete a dissertation. Both are developed through faculty-guided independent research projects.

Review of a theses or dissertation will follow the sequence of steps described in the manual, *Preparation of Theses and Doctoral Dissertations*. Copies of this manual are available in the dean's office, each graduate division, and the Library of Rush University. Each thesis or dissertation must be original and cannot have been used to meet the requirement of any other degree, either at Rush University or any other university.

Each student will have a Dissertation Committee whose role is to assure that the student's dissertation is of high quality and meets the standards of the division, the college, and the university for originality, contribution to the field and scholarly presentation. The Committee is also to assure that the student is making satisfactory progress toward completion of the dissertation. Additional policies on the Dissertation Committee are available from division directors or the dean's office.

At or near the completion of the dissertation, each student will share with the academic community at large the knowledge that the student has developed through a public presentation. Students are responsible for posting announcements on institutional bulletin boards of the presentation that contain the title of the dissertation, the student's name, and the location, date and time at least two weeks prior to

the presentation. This public presentation must precede the final approval of the dissertation by the Dissertation Committee.

Academic Progression. Specific regulations governing the process that results in final awarding of the degree are developed by the graduate division responsible for the candidate's progress. While such regulations differ from one division to another, each division's program and regulations are reviewed for approval by The Graduate College Council. In all cases, graduate divisions are required to be explicit and clear about regulations that will affect the candidate. This must be stringently observed in divisional regulations concerning selection of principal advisors, advisory committees, and a plan of study. Similarly, divisions will be explicit and clear concerning academic policies and procedures surrounding qualifying, preliminary, and final examinations when they are required. The divisions are also responsible for providing the candidate with the support needed to plan and conduct the thesis or dissertation research.

At the same time, a major responsibility of the student is to become familiar with the regulations and expectations of his/her chosen division. These regulations and expectations are included in the *Rush University Bulletin* within the section devoted to each divisional program and within program publications. It is considered to be the student's responsibility to remain knowledgeable about these program regulations as they are set forth; they may change from time to time.

Some divisional programs may require the student to take one or more courses at a university other than Rush. It is the responsibility of the director of the graduate division concerned to make arrangements enabling satisfaction of such course requirements and to inform the student, prior to admission, of such costs and special arrangements as may be necessary.

Admission to Candidacy. Admission to candidacy is evidence that the doctoral student has successfully completed all required courses and has prepared to move into his/her intensive research experience. Admission to candidacy is a demonstration of confidence that the student will successfully accomplish the remaining requirements of the program. At such time as the student is admitted to candidacy, upon notification from the student's division director, the registrar enters "Admitted to Candidacy" and the date on the student's official transcript.

Academic Policies

(Additional policies are listed in the Academic Information section.)

The Graduate College adopts college-wide policies and procedures and reviews division regulations. Students follow the college and division policies in effect at the time of initial matriculation in The Graduate College although the effect of major changes in policy will be negotiated by the student and division director. Students reentering the college after an absence will be guided by policies and procedures in effect at the time of reentry.

Transfer of Credit. Subject to the approval of the major advisor and the division director, graduate level courses taken at other institutions may be applied to the graduate degree requirements at Rush if they are judged to meet divisional requirements. Grades from courses transferred from another institution are not recorded on the student's academic record; the number of credits is recorded and added to the cumulative number of credits.

Credit Hours. Rush University is on a quarter system. The quarter hour is the unit used by the College of Nursing, the College of Health Sciences, and The Graduate College to determine credit for courses taken. As a general rule one quarter hour represents one lecture hour, two hours of small group discussion or three laboratory hours per week.

Each quarter is at least ten weeks in length. An examination period is provided at the end of each term, and most classes give a final examination during this time.

Examination Policy. The examination policy is the responsibility of the individual course director who will inform students of examination requirements for that particular course. A period at the end of the quarter is provided for examinations. This period may be used as the course director chooses.

Pass/No Pass Grades. Each division identifies all required course of its student. No required course may be taken under the pass/no pass option. With permission of the division director, electives may be taken for pass/no pass grades. The master's thesis and precandidacy research are graded P/N. The grading policy for postcandidacy research (699) for doctoral students is determined by each division.

Incomplete Grades. The grade of incomplete (I) is normally given only when circumstances beyond the control of the student prevent

completion of course requirements and the student has received permission to defer completion of these unmet course requirements. The course director shall determine what work will be required to remove the incomplete and shall establish a specific time frame within which the student must complete such work, not to exceed one calendar year. No student may graduate with an incomplete grade on his/her academic record.

Upon completion of the unmet course requirements a new grade will replace the incomplete grade. A student who fails to remove the incomplete grade within the specified time period will receive a final grade of F.

Academic Standing.

The following policies govern academic standing in The Graduate College:

Good Academic Standing. To remain in good academic standing, students must maintain a cumulative grade point average of 3.0 and meet the requirements of his/her division. A student must be in good academic standing to be admitted to candidacy and to graduate.

Academic Difficulty. Each division has policies and procedures regarding students who fail to maintain good academic standing. While the responsibilities of informing students of their academic problems and of establishing conditions for regaining good academic standing reside with the divisions, The Graduate College Council monitors the progress and promotion of all students and gives final approval to award students' degrees.

Dismissal. Grounds for dismissal beyond minimal criteria established by The Graduate College are determined by each division. Should a division recommend the dismissal of a student, the director will forward such recommendation to The Graduate College Council for final action. Letters of dismissal come from the dean. Appeal of a dismissal action begins within the appropriate division.

Full-time enrollment. Full-time enrollment is required of all Graduate College students. Students must register for at least 12 but not more than 17 quarter hours per quarter. Students must obtain written permission for exceptions to this policy from the division director.

Residency. Years of residence required by divisional programs are based on the definition that a student must be registered for a minimum of three subjects in each of three quarters to satisfy The Graduate College requirement of a resident year. The Graduate College minimum residency required of all graduate students is registration as a full-time student for eight

quarters of at least 12 credit hours each. Unless granted a formal leave of absence, regular graduate students who fail to register for three quarters in each academic year, depending upon divisional requirements, are considered to have withdrawn from the University and must compete for readmission with other applicants.

Extension of Study. Maximum enrollment for degree completion is seven calendar years. Any approved leave of absence will be excluded from this time. A student may petition for an extension of the overall time limit to the division director. If such an extension is granted, the student will be expected to enroll full time for each remaining quarter in residence. If a student proposes to maintain active status in The Graduate College while at another location, approval by the division director and The Graduate College Council will be necessary. Such a student will enroll each quarter with the Registrar of Rush University for zero hours of credit and will be charged the enrollment fee at the rate in effect at that time.

Leave of Absence. A student who wishes to leave the University for a period of time may submit to the division director a written request specifying the circumstances and period of time involved. All decisions regarding the conditions of the leave and of the reentry into the program will be communicated to the student by the division. No leave of absence shall exceed one calendar year (see Academic Information Section).

Withdrawal from the University. Students withdrawing from the University voluntarily must complete a form available in the Office of the Registrar. The student will obtain the necessary signatures and return all Medical Center material and the identification card. Withdrawal is final once all Medical Center bills have been paid and the completed form is submitted to the Office of the Registrar (see Academic Information Section).

Readmission. Any student who has withdrawn from the University or any dismissed student may apply for readmission by submitting an application for this purpose to the admissions office. An interview may be required. A reentering student must meet the conditions for reenrollment stated in his/her dismissal or reentry acceptance letter and all policies, requirements and course sequence in effect at the time of reentry. The student will pay tuition and fees at the rates in effect at the time of reenrollment. Application deadlines may vary by division.

Committees of The Graduate College

The Graduate College Council. The Graduate College Council is the senior representative body for The Graduate College. The committee is comprised of all program directors, three elected faculty-at-large representatives and two student representatives. The Graduate College Council is chaired by the dean of The Graduate College.

Division of Anatomical Sciences

Philosophy

The Division of Anatomical Sciences offers programs of study at the master's and doctoral level to prepare students for roles in teaching and research. A pedagogic component provides experience in gross anatomy, histology, and neuroanatomy sufficient for the student to be a confident participant in teaching, in the organization of courses and in conferences in the medical setting. Advanced coursework is available in cytology, embryology and developmental biology, regeneration, and the anatomy of joints. It is the goal of thesis and dissertation research to foster the students' conceptual growth as well as independence and resourcefulness in application of anatomical methods to the broader scope of a biomedical problem.

Admission Requirements

The Division of Anatomical Sciences seeks students who demonstrate in their previous educational experience motivation toward teaching and research as well as a capacity for independent study. The tutorial nature of graduate study in the Department of Anatomy requires that consideration be given to potential for the expansion of the student's area of interest with respect to the expertise and resources of individual faculty.

Applications are invited from students who have been awarded the baccalaureate degree; students who have satisfactorily completed other graduate work, or superior medical or other professional students at Rush who wish to pursue concurrent graduate study.

An undergraduate record with performance of at least a 3.0 (A = 4.0) or equivalent level in the major field of study is required. The major, preferably in biology or chemistry, should include laboratory experience; courses in comparative anatomy and embryology are recommended. The Graduate Record Examination (GRE) is required in conjunction with either the biology or chemistry subtests.

Personal interviews are required of applicants whose credentials demonstrate acceptable academic and test performance. The purpose of this interview is to provide the

applicant with a better idea of departmental activities, and to assess his/her basic areas of interest.

Specific divisional admission requirements may be waived at the discretion of the Graduate Advisory Committee in anatomy. Advanced placement credits, also subject to approval, are limited to a maximum of one academic year. Since the course cycle begins in the fall quarter, applicants are ordinarily expected to complete their files by May 1 preceding the intended date of admission.

Curriculum--Ph.D. Program

The first- and second-year curricula are devoted to anatomy course work and to complementary electives selected from cell biology, physiology, biochemistry, pharmacology and immunology. Pedagogic experience in anatomy is provided through teaching assistantships during the second year.

An independent study during the second quarter of the first year is intended to help the student outline a preliminary project to be conducted in the summer following the first year. This project allows the student to apply anatomical methods to experimental objectives established in collaboration with a supervising faculty member. The project is intended to help the student develop lines of interest for additional elective course work and dissertation study.

Preliminary Examination. After completing the course requirements, the student must take the preliminary examination in order to qualify for degree candidacy. This examination emphasizes the student's ability to synthesize material, to solve problems and to communicate verbally and in writing. The first part of this examination consists of a written, comprehensive examination on course material. The second part, an oral examination, is based on the student's dissertation proposal.

Dissertation Research. Upon completion of both parts of the preliminary examination, the candidate devotes his/her time entirely to dissertation research and writing. The dissertation must be an original experimental or applied study; its format and review must comply

with requirements of The Graduate College. The candidate must finally defend the completed dissertation before his/her research committee.

Course Requirements. The program requires a minimum of 140 quarter hours of credit. The Division of Anatomical Sciences maintains a minimum residency requirement of eight quarters of full-time registration in The Graduate College. This residency requirement also applies to students who have received advanced standing.

Three advanced topics in anatomy (8-12 quarter hours total) are required. These are delivered as seminars, tutorials or, in some instances, as laboratory instruction. Courses

offered by the Division of Cell Biology (CEL 501, CEL 522, and CEL 571) are recommended so that four hours from this course series may be applied to the major advanced topic requirement.

The balance of elective hours are subject to approval by the Division of Anatomical Sciences. Two minor electives must be taken outside of the division.

Journal Club. Participation in the departmental journal club is expected each quarter. This club exposes students to current topics in anatomical research and provides opportunities to discuss problems with established investigators.

Suggested Curriculum: Anatomical Sciences

Year I		Doctoral Quarter Hours	Masters Quarter Hours
Fall Quarter			
ANA 451	Histology	5	5
ANA 471	Human Anatomy I	7	7
ANA 501	Supplement to Histology	1	2
ANA 503	Supplement to Human Anatomy I	1	1
ANA 595	Journal Club	1	1
Winter Quarter			
ANA 472	Human Anatomy II	7	7
ANA 504	Supplement to Human Anatomy II	1	1
ANA 581	Approaches & Meth. in Morphological Research	2	2
ANA 595	Journal Club	1	1
	Elective	5	2
Spring Quarter			
NEU 451	Neurobiology	5	5
CEL 501	Cell Biology or Equivalent Course	2	2
ANA 505	Embryology	2	2
ANA 581	Research Methods in Anatomy	2	2
ANA 595	Journal Club	1	1
	Elective	2	2
Summer Quarter			
ANA 595	Journal Club	1	1
	Research (Proposal Development)	13	13
Year II			
Fall Quarter			
ANA 591	Teaching Assistantship	9	3
ANA 595	Journal Club	3	3
	Electives	14	2
followed by Written Comprehensive Examination and Thesis Proposal			

Master's Program

A master of science degree with a major in anatomical sciences is offered for individuals seeking advanced study without the full commitment to doctoral study. This is primarily a concurrent degree program for Rush medical students although outside applicants will be considered. Flexibility of this program permits students to pursue cross-disciplinary research in other departments where a structural biology problem is involved.

The program consists of six quarters of study and requires a research thesis. On the recommendation of the program director, a student may petition for admission to the doctoral program.

M.D./M.S. or M.D./Ph.D. Program

The exceptional student with a research orientation may wish to pursue both the M.D. and Ph.D. degrees. Coordination of Ph.D. and medical study is especially feasible in the Division of Anatomical Sciences since introductory course work for the Ph.D. degree can be satisfied within the medical curriculum.

Although master's degree requirements can be completed within the four year medical curriculum, the Ph.D. requires a commitment of at least two years. Arrangements with the medical school can be adapted to suit individual needs.

Academic Policies

(Additional policies are listed in The Graduate College and in the Academic Information sections.)

Assessment of Progress. The student's progress will be assessed continuously based upon performance in the courses taken and upon evaluations by the Graduate Advisory Committee.

Good academic standing requires maintenance of a cumulative grade point average of 3.0 with the exception that students earn B grades in the major anatomy courses. An outline of specific policies relevant to the preliminary examination and dissertation defense may be obtained from the program director.

Guidance. Each entering student is guided in his/her course of study by the program director with the assistance of the Graduate Advisory Committee until such time as the student determines a course of dissertation scholarship

Degree Requirements	Doctoral Program	Masters Program
Core Anatomy Courses	32	22
Electives	21	11
Teaching Assistantship	9	3
Journal Club	6	6
	68	
Research	72	13
Total Hours	140	55

and selects a research advisor.

The research advisor, who must hold an appointment in the Division of Anatomical Sciences, ensures that the student's graduate course work satisfies requirements of the division and The Graduate College; assists the student both in the development of a dissertation proposal and in dissertation research.

Research Activities

Modern research and teaching areas in the Academic Facility have been designed specifically to meet the needs of both basic medical science education and research with accessibility to scanning and transmission electron microscopes and a bioinstrumentation laboratory. Individual faculty are available to discuss their research interests with prospective applicants and to provide documentation of current activities.

The opportunities exist for students to establish cross-disciplinary programs with affiliated clinical departments, such as the Department of Ophthalmology or the Department of Orthopedic Surgery, which has one of the major gait laboratories in the country.

Research in neurobiology is focused on cellular responses to nerve injury and repair (Kerns, Jacob, Durica). Mechanisms of pattern formation and histogenesis are being studied in regeneration of amphibian limbs (Dinsmore). Pathology of retinal ischemia and its effects on microvasculature is being studied in the eye (Hughes). Structural and physiologic studies on the lens are directed to the function of membrane

specializations in cell communication (Kuzak). The organization of the red cell membrane is being studied in relation to pathological deformations and the cytoskeletal components of the erythrocyte (Kodadad). Mechanisms and regulation of platelet formation are being studied in bone marrow (Levin). The pathophysiology of

the synovial joint and articular cartilage is being studied in experimental models (Williams). Biomechanical studies on locomotion in health and disease are conducted in the gait laboratory (Andriacchi, Sumner).

Division of Biochemistry

Philosophy

The goal of the graduate program in the Department of Biochemistry is to provide high quality education, practical training, and research opportunities to students who are interested in practicing basic and applied molecular medical biochemistry of cell function. Otherwise stated, the goal is to develop health care professionals who will substantially improve health care delivery to the public. *Medical biochemistry* is perhaps the most fitting single term that can describe the department's scholarly direction. Members of the Department of Biochemistry conduct a broad range of extramurally supported research activities. A strong interaction exists between practicing clinicians and members of the department for investigative expertise in the areas of connective tissue biochemistry, etiology of arthritis, mechanisms and regulation of tumor cell invasion, regulation of gene expression, cell membrane lipid biochemistry, endothelial cell biochemistry and thrombosis, bacterial physiology, and applications of clinical biochemistry to medical problems. Some of these research programs are joint efforts with other departments giving the student an opportunity to interact with investigators in other disciplines as well as clinicians. The departmental laboratories are fully equipped with the instruments required for modern research in biochemistry, tissue culture and molecular biology.

Several faculty members are involved in the operation of hospital clinical biochemistry laboratories and perform basic as well as developmental research related to human diseases. These laboratories are available for student training. The Clinical Biochemistry Laboratories are modern, automated, computerized high-volume medical service facilities. The holdings and service of the Library of Rush University, as well as the numerous journals and books received in the department, provide ready access to the scientific literature.

Admission Requirements

Normally, minimum requirements for admission include a bachelor's degree in any specific discipline with a minimum grade point average (GPA) and Graduate Record Examination (GRE) scores as defined by The Graduate College. Specific course requirements are as follows: chemistry---one year each of general

chemistry and organic chemistry plus one semester or one quarter of quantitative analysis; biology---one year of general biology plus one year of intermediate or advanced undergraduate biology; mathematics through calculus; physics---one year. A semester of physical chemistry is recommended but not required.

Students may be accepted with less than the minimum requirements with the understanding that such deficiencies are to be made up during the first year of graduate study and that such make-up work may prolong their studies at Rush. Alternatively, the Graduate Program Committee may waive specific division requirements on a case by case basis as recommended by its credentials subcommittee.

Students are normally admitted in the fall quarter, but the Graduate Program Committee may at its discretion recommend admission for the winter, spring, or summer quarter. Applications may be submitted at any time during the year, preferably before March 1.

Applications for admission to the program will be evaluated by the Graduate Program Committee of the Department of Biochemistry and in special cases the Graduate College Council. Applicants are encouraged to visit Rush University for an interview. Consideration for admission will include overall academic record, results of the GRE, recommendation of the referees, and especially interview results.

Applicants to the joint M.D./Ph.D. program must first be accepted by Rush Medical College. However, those applicants who are not admitted to the medical college may apply for the Ph.D. program and their applications will be processed in the usual manner.

Transfer students with an advanced degree in science may upon the recommendation of the Graduate Program Committee, be admitted to the graduate program in biochemistry with advanced standing. The extent of advanced credit will be determined by the Graduate Program Committee on an individual basis through its credentials subcommittee. All advanced level entrants are urged to see the credentials subcommittee before matriculation.

Organization of the Graduate Program

The Graduate College Council, chaired by the Dean, has the ultimate responsibility for all decisions with regard to all graduate programs in

the college except for those decisions allocated to the division. Within the division, the department chairman has full responsibility for the operation of the graduate program. However, the chairman delegates the day-to-day operation of the graduate program to the Director of Educational Programs, who works closely with the Graduate Program Committee, which recommends admissions, faculty appointments to The Graduate College, follows student progress, approves the appointments of advisors and committees, schedules student preliminary examinations, dissertation proposals and dissertation examinations, and receives the results of such committee deliberations. Both the chairman and the Director of Educational Programs are ex-officio members with vote of all committees dealing with the graduate program.

The Director of Educational Programs is appointed annually by the chairman of the department and serves as the Director of the Graduate Program and member of the Departmental Advisory Committee. He/she is a member of The Graduate College Council. In addition, he/she is responsible for the delivery of the biochemistry instruction for Rush Medical College, the College of Nursing and the Medical Technology program. He/she approves graduate students' programs each quarter, maintains graduate student records, and chairs the Graduate Program Committee in its deliberations. To assist the Director of Educational Programs, the chairman annually appoints an Assistant Director of Educational Programs who is also a member of the Graduate Program Committee and to whom the director may delegate some of his/her duties.

The Graduate Program Committee consists of nine members appointed by the chairman including the Director of Educational Programs as chairperson, a graduate student selected from the student body, and the department chairman (ex-officio). At least two of the eight appointees will hold their primary appointments in other departments. The Graduate Program Committee transmits to the chairman of the department all graduate program matters for approval. All decisions of the committee are made on the basis of a majority vote of members present. In general, the following list specifies the committee's responsibilities.

1. recommends graduate student admission to the program and specifies advanced students' courses of study. To aid the committee in this task, its chairman appoints a credentials subcommittee consisting of two committee members. Their recommendations are then considered by the committee.
2. follows the progress of each graduate student and recommends probation,

dismissal, and leaves of absence. The committee notifies the student's advisor of any actions taken or needed to promote the best interests of the student.

3. appoints the Departmental Examination Committee which prepares the yearly written portion of the preliminary examination.
4. recommends and approves the composition of a Dissertation Advisory and Dissertation Examination Committees, if it deems the student to be ready, and receives the results of the examinations. Recommends a course of action if the examinations are not passed.
5. serves as an informal forum to adjudicate difficulties arising between student and advisor, either directly or by referring these to other committees and/or the Program Director. It also serves as the first instance in a formal grievance or appeal by a graduate student.
6. develops and modifies the graduate program curriculum; reviews and approves course outlines for new graduate course proposals, establishes grading policies and course requirements.
7. recommends appointments of members of the faculty to The Graduate College faculty and recommends discontinuation of such appointments. Only faculty members with Graduate College appointments and active research programs may serve as graduate student advisors.
8. considers any such other matters as may relate to the administration of the graduate program.

Grievances. The graduate program committee serves as a formal grievance forum of first instance. The departmental advisory committee functions as a formal grievance committee of second instance with respect to students. The next avenue of appeal is The Graduate College.

Financial

Tuition is determined by the University for all graduate students, but this is usually waived for qualified students. Scholarships and/or financial aid packages are available for those students who qualify. All Rush University students may apply for financial assistance through the Office of Student Financial Aid.

Student stipends are available on a competitive basis. It is intended that graduate students receive their stipends from the Department of Biochemistry until the individual has passed his/her written portion of the preliminary examination. From that point on, it will be the obligation of the research advisor to provide the student with financial support from

his/her extramural research support. At present (1996) this will be \$12,300 (including summers) per year before preliminary examination and may be increased by approximately 10 percent, determined on an individual basis, after successful completion of the dissertation proposal examination. Faculty members are required to add graduate student salaries to their budget requests to extramural funding agencies or use technician salaries to support the students. This approach assures that graduate students will select those faculty members or programs that are well funded on the basis of quality and competitive review. Thus, the students will have a better opportunity to complete a quality research project and obtain training within a research program that has met peer-review standards.

Curriculum

Introduction. The Ph.D. is a research degree that is conferred in recognition of proficiency in research, breadth and soundness of scholarship, and thorough acquaintance with a specific field of knowledge as determined by the graduate faculty. To attain these goals the curriculum includes:

1. A core of required biochemistry courses that provide the basis for students to pursue their own specialized research.
2. A variety of elective courses that provide the student with the flexibility to tailor their course work to their research interests or needs.
3. Research to be started as soon as possible after matriculation.

During the student's first year he/she will complete most of the required biochemistry courses, as well as some of the elective courses. He/she must select a research advisor by April 15 of the first academic year in accordance with the Division's procedures. Until a permanent advisor (and mentor) is selected, the Director of Educational Programs serves as the student's advisor. During the summer quarters the student will register for a minimum of 12 credit hours. During quarters 5, 6, and 7 the student will take electives, do research, participate in the pathobiochemistry seminars and write the one-day written preliminary examination at the end of quarter 8 (summer of second year). If the written examination is passed (score of 70% or better), the student is expected to submit, no later than the end of quarter nine, a written dissertation proposal to his/her Dissertation Advisory Committee and defend the proposal in an oral examination before the committee. The student may continue taking formal electives, with the concurrence of his research advisor, while

completing his/her dissertation. When the research project has achieved the desired objectives under the guidance of the Dissertation Advisory Committee and advisor, the student will defend his/her dissertation as provided for by the Graduate College rules. Additionally, one or more manuscripts based on the student's dissertation work must have been published, accepted, or submitted for publication in a peer-reviewed journal. Successful completion of the above course of study and research leads to a recommendation that the Ph.D. degree be conferred upon the successful student.

Required Didactic Courses. Any portion of this may be waived on a case-by-case basis by the Graduate Program Committee:

Table 1. Required Courses for Biochemistry Graduate Students

Course	Number	Credits
Medical Biochemistry	BCH 471, 472	11
Advanced Biochemistry	BCH 505	4
Biochemical Techniques	BCH 581-583	9
Connective Tissue Biochemistry	BCH 624	3
Cell Biology I	BCH 531	3
Biochemical Calculations	BCH 551	2
Journal Club	BCH 595	6
Seminar	BCH 597	9
Introduction to Research	BCH 698	2
Electives (didactic)		10
Total course work		59
Students register for BCH 699 credits to make 12 hours minimum total each quarter		

1. **Quarter Hours Required.** A full-time graduate student is registered for 12 or more hours of credit each quarter. A total of 144 quarter hours with usually 12-16 quarters in residence is required for graduation. The Graduate Program Committee may at its discretion recommend a waiver to The Graduate College Council of any portion of this requirement for students with previous graduate work at Rush or elsewhere.
2. **Required courses -** A total of 59 quarter hours of course work is required. Required biochemistry courses are shown in Table 1. The ten elective hours can be selected from courses listed in Table 2. Additional electives may be taken in subsequent years with approval of the student's research advisor.

All required didactic courses in biochemistry and those biochemistry courses taken to satisfy

Table 2. List of Recommended Electives

<u>FALL</u>		
IMM 502	Immunology	4
PHR 501	Pharmacology	5
PHY 451	Physiology	5
<u>WINTER</u>		
PHY 452	Physiology	5
MIC 521	Molecular Biology	3
MIC 523	Molecular Genetics	3
<u>SPRING</u>		
BCH 532	Cell Biology	4
IMM 501	Imunology	5
BCH 651	Science and the Law	2
<u>ANY QUARTER</u>		
BCH 690	Minicourses	1 each
Variable topics		
BCH 585	Extramural Research	5
(Open to selected students upon application to Department Chair.)		
BCH 599	Independent Study *	Variable credit
* Any topic, under guidance of a professor at Rush or elsewhere. Must be approved by Director of Educational Program.		

elective requirements must carry a letter grade. Electives taken outside the Department of Biochemistry may be taken for a letter grade or for a Pass/No Pass as determined by the

department. Other nonrequired elective courses may be taken on a Pass/No Pass basis. Research and seminar courses carry a P/N grade.

The department seminar program may be considered to be a part of the student's research experience. Attendance at seminars is mandatory through the first three years at Rush through registration in BCH 597. The seminar chairperson will monitor attendance and, since members are part of the student's research experience, questions concerning seminar topics may be part of the preliminary examination. After a student has passed his/her preliminary examination, he/she may be excused from attending a particular seminar upon the written approval of the research advisor.

3. Suggested Program (see Table 3). Note that:
 - a. All required courses are taken in the first and second year; electives are taken through most, or all, of the second year.
 - b. A research advisor is selected by April 15 of the first year. In general, a research advisor's/mentor's students shall be at least two years apart with respect to their Ph.D. candidacies.
 - c. During the summer, the student registers for 12 hours of research.

Table 3. Suggested Program of Study

Year	Fall		Winter		Spring		Summer
1	BCH 531	6	BCH 471	5	BCH 472	5	BCH 699 12
	BCH 581	4	BCH 551	2	BCH 505	4	
	BCH 595	2	BCH 582	4	BCH 583	1	
	BCH 597	1	BCH 595	2	BCH 595	2	
	BCH 698	1	BCH 597	1	BCH 597	1	
	BCH 699	1	BCH 698	1	BCH 699	1	
2			BCH 699	1			BCH 699 12 Take written preliminary exam
	BCH 597	1	BCH 597	1	BCH 597	1	
	Elective	3-5	Elective	3-5	Elective	3-5	
	BCH 624	3	BCH 699	6-8	BCH 699	6-8	
3	BCH 699	4-6					BCH 699 12
	BCH 597	1	BCH 597	1	BCH 597	1	
	BCH 699	11	BCH 699	11	BCH 699	11	
	Defend dissertation proposal						

In subsequent years: Enrollment in BCH for 12 hours each quarter until successful dissertation defense.

Twelve hours (full-time) enrollment is required each term. It is required that the student select an advisor by April 15 of the first year.

Academic Policies

The goals of the Ph.D. program are to provide education, training and research opportunities to students interested in the various branches of biochemistry. All students will acquire a thorough knowledge of normal biochemical processes that occur in the human organism leading to the development of knowledge and skills that are of potential benefit to health care delivery.

The Ph.D. degree will be awarded following the successful defense of a research dissertation that demonstrates the ability of the student to perform and present original scientific work. Prior to this time, the student must have completed all course requirements with a minimum average of B (3.0/4.0) and have passed the Preliminary Examination.

Written Preliminary Examination. The one-day written preliminary examination is taken by the student during quarter 8 of his/her graduate studies. It consists of basic biochemistry, biochemical methodology, connective tissue biochemistry, molecular biology and cell biology. Questions relating to seminars may also be included.

The examination is put together by a committee appointed by the Director of Educational Programs with the consent of the Graduate Program Committee. Normally, questions from the faculty-at-large are also solicited. After a student passes his/her written examination, he/she is admitted to Ph.D. candidacy as defined by the Graduate College.

If a student fails the preliminary examination (score of less than 70%), a makeup examination will be given to the student within eight weeks of being notified of the failure. If a student fails the makeup exam, the case will be referred to the Graduate Program Committee, which may vote to dismiss the student or to give the student a third and final opportunity to take the written preliminary examination.

Dissertation Advisory Committee. A Dissertation Advisory Committee for a student may be appointed at any time after choosing the permanent advisor upon a written request to that effect by the student's advisor. The request shall be forwarded to the Director of Graduate Programs, who will present it to the Graduate Program Committee for approval. Composition of the committee is established according to Graduate College rules.

The Dissertation Advisory Committee will evaluate the student's written proposal and then convene in a formal defense sitting to hear the student's oral presentation and to make

suggestions. The formal presentation should take place within one quarter following the successful completion of the preliminary examination. The main purpose of the Dissertation Advisory Committee is to determine if the student's proposal will form a sufficient basis for writing a Ph.D. dissertation. Following approval of the proposal, the student is expected to complete his/her work substantially as described in the proposal. Any major deviations must be approved by the Dissertation Advisory Committee, which shall meet at least once a year to monitor the student's progress. Its members also serve as resource persons for the student during his/her dissertation work. All decisions of the Dissertation Advisory Committee will be based on a majority vote of the committee membership.

The format of the written presentation may be that if the in-house grant application with literature review, describing previous work done, methods, hypothesis, significance, etc.

Should the Dissertation Advisory Committee not approve the student's proposal, it shall make its recommendation for correcting the defect or for other action to the Graduate Program Committee.

Dissertation Examination Committee. The Dissertation Examination Committee is appointed at the written request of the student's advisor to the Graduate Program Committee when, in the view of the advisor and the student's Dissertation Advisory Committee, the student is ready to prepare his/her Ph.D. dissertation. It will normally be identical to the Dissertation Advisory Committee though additional members may be appointed. Inclusion of extramural members is encouraged; however, a majority of the committee membership shall be comprised of the Department of Biochemistry faculty. The Dissertation Examination Committee members receive the student's dissertation at least four weeks before the defense. The defense itself is conducted according to Graduate College rules. Upon successful defense of the dissertation research work and evidence of a published, accepted or submitted peer-reviewed journal article(s), the Dissertation Examination Committee, through its chair, recommends that the student be awarded the Ph.D. degree. Format of the dissertation shall be as specified by The Graduate College. All decisions of the Dissertation Examination Committee are made according to Graduate College policies.

Grade Point Average. Students must maintain a GPA of 3.0 (B) and have no outstanding failures in order to remain in the program, to be admitted to the preliminary examination and to graduate.

At the end of each academic quarter, the student's academic progress is reviewed by the Director of Educational Programs. If the student's average is below 3.0, the student's advisor will be sent a letter by the Director of Educational Programs informing him/her of the consequences of not maintaining an average of 3.0 or above as well as suggestions for improvement. If the GPA is below 3.0 or if the student has one or more failures in a required course(s) taken on a P/N basis, the committee may recommend the student's dismissal from the program or may recommend placing the student on probation for one or two quarters. The committee shall define precisely the terms of the probation in a letter to the student. If such terms are not carried out by the student and he/she receives a failing grade in a nonrequired elective, the student's record is reviewed by the Graduate Program Committee to decide how the failure is to be handled.

Student Responsibility. It is the student's and his/her advisor's responsibility to read and observe the regulations set forth by the department, The Graduate College, and Rush University. It is also the responsibility of each student to read and observe the requirements for the Ph.D. degree set forth by The Graduate College and the Graduate Biochemistry Program and to meet deadlines established by both. Failure to receive notice of examination, filing dates, etc., does not exempt students from requirements. It is the student's responsibility to seek out this information.

The student shall conform to the highest ethical standard expected of a scientist. Deviations from the norm in the form of plagiarism, data falsification or cheating on examinations, or other behaviors unworthy of a scientist will not be tolerated. Should unacceptable behavior on part of a student come to the attention of a faculty member, he/she will report this to the Graduate Program Committee through its chair. The committee will then carry out an investigation, and if the report is substantiated, shall recommend appropriate sanction.

Time Limit No more than seven years shall be allowed for the completion of the doctoral program, though quarter by quarter extensions may be granted via petition to the Graduate Program Committee.

Extramural Experience. Selected students will have an opportunity to spend a quarter in a basic science research laboratory in an industrial setting or another recognized institution for research or higher learning in the United States

or Europe. The students will be selected for such experience through guidelines established by the department.

During his/her tenure in the outside laboratory or institution, the student will register for BCH 585 Extramural Research (5 hours). The selected student will spend eight to ten weeks (normally during the spring quarter) at an industrial research laboratory in Europe or the U.S. under the guidance of a faculty member in industry or at another research institution, who holds a faculty appointment at Rush. The student will select a major and a minor area from the research areas provided and will study in both these areas during his/her stay at the institution. The student will be required to read assigned articles, take a final examination to be given by the faculty member based in industry or another research institution and submit a report on his/her experience and accomplishments to the Director of Educational Programs. Letter grades based on the student's performance will be given.

During his/her experience at the outside laboratory the student will also be registered for BCH 699 Research (7 hours).

Master of Science program (pending final approval)

The Division of Biochemistry admits only Ph.D. students. However, circumstances may arise that would not permit the student to complete his/her studies toward the Ph.D. degree, e.g., inability to pass the preliminary examination, family problems, etc. In such cases, upon approval of the Graduate Program Committee, the student may transfer to the M.S. program. The M.S. student will be required to complete the same course work as that required of the Ph.D. student, to maintain a B average, and to defend an M.S. thesis based on novel laboratory data.

Concurrent M.D./Ph.D. program

A student who has been admitted to, or is currently attending Rush Medical College, may apply for admission to the concurrent M.D./Ph.D. program in the biochemistry department.

The program is tailored to an individual student's needs. Normally the student first takes the required preclinical courses at Rush Medical College and passes the United States Medical Licensure Examination (USMLE), Step 1. The student may then begin work in the graduate program, which would normally take two to three years. Following the completion of graduate work, the student resumes medical studies in the clinical clerkships. Alternatively, the medical

student may complete the medical school requirements for graduation before entering the Ph.D. program.

The participant in the concurrent M.D./Ph.D. program will be expected to fulfill the same divisional requirements set by the credentials subcommittee of the Graduate Program Committee. This would include formal course requirements at the appropriate grade level, passing the preliminary examination, and the submission of a high quality dissertation based on original research work. Many formal course requirements for the Ph.D. degree will be met by taking the prescribed Rush Medical College preclinical courses, e.g., biochemistry,

pharmacology, physiology, immunology, and electives.

How the student meets any additional formal course requirements will be determined on an individual basis by the Graduate Program Committee. It is expected that most course requirements will be met by the M.D./Ph.D. program participant during the first year in the graduate program and that the preliminary examination will be taken at the end of the first year. The remainder of the student's time is to be spent in research activities. The entire concurrent M.D./Ph.D. program should normally require six to seven years to complete.

Division of Cell Biology

The Program

Generally, cell biology explores the structural organization and functional integration within cells. As a field of study, its knowledge and techniques extend to all the specialized fields of the health sciences. The purpose of the Division of Cell Biology is to supplement understanding of such basic knowledge and techniques for students in the health sciences. The division encourages integration of the resources of people and facilities throughout Rush University to produce a comprehensive study of the cell. Such a purpose must be multidisciplinary for cell biology spans many departments within the University, including anatomy, biochemistry, immunology, microbiology, neurological sciences pathology, pharmacology, and physiology.

Historically, the electron microscope has had a major impact on the growth of cell biology; more recently molecular biology has provided insights into the function of cells. Some of the teaching of the division is centered around the electron microscopy laboratory of The Graduate

College. Students will study the ultrastructure of the cell and its organelles in electron micrographs. But it is most important that they learn about the function of the organelles in a multidisciplinary fashion. Thus, the supramolecular structure and biochemical ultrastructure of the cell constituents are emphasized. Advanced students will learn the technical skills necessary for pursuit of research projects involving cell biological techniques. Teaching is organized with courses in cell and molecular biology and electron microscopy. Students taking such courses may use them as credits toward their Ph.D. requirement in other graduate divisions of Rush University, subject only to the regulations of those divisions.

Courses

The courses available are subject to demand and limitation to graduate students within the graduate, medical, nursing (i.e., graduate nurses), and health sciences colleges.

Division of Immunology

Philosophy

The goal of this program is to train investigators who will contribute to the advancement in understanding immunological and virological mechanisms in health and disease.

Admission Requirements

Students who have received the baccalaureate, master's, or doctoral degree may apply. It is recommended that students wishing to enter the program should have achieved a high level of competence in biology, mathematics, and chemistry. It is important that applicants be adequately prepared to engage directly in graduate study and research.

Candidates usually enter the program in the fall quarter; applications should be submitted as early as possible and no later than April 1. Applications will be evaluated as they are received.

Applicants for admission to the program will be evaluated by the departmental admissions committee. Considerations for admission will include overall academic record, the recommendations of the sponsors, results of a recent Graduate Record Examination, and the description of the applicant's own aspirations and interests. Personal interviews will be arranged for potential candidates after the preliminary screening. Students will be admitted into the program at levels other than first year only under exceptional circumstances; this will require approval by the faculty of the Division of Immunology and by The Graduate College Council.

Curriculum Requirements

A core program of courses encompassing major aspects of immunology and microbiology given concurrently with pre-thesis research comprises the first two years.

The curriculum consists of two academic tracks, immunology or virology. Specialized courses and research training are offered in both areas.

Courses in basic immunology, basic microbiology, virology, biochemistry, molecular genetics, molecular biochemistry and cell biology make up the first year core required of all students. In addition, immunology track students must take advanced immunology while virology

track students are required to take advanced biochemistry. Elective courses include clinical immunology, medical microbiology, and special topics in host defense, membrane biochemistry, inflammation, and others. A variety of elective courses from other divisions of Rush University are also available.

Academic Policies

(Additional policies are listed in The Graduate College and in the Academic Information sections.)

General Information. A minimum of three years of full-time study (four quarters per year) and research, or the equivalent in part time, is required to satisfy the residency requirements of this program.

Upon admission each student will be assigned by the program to an individual principal advisor who will be responsible for guiding the student's academic activities. During the first 12 to 24 months the student will carry an academic program designed for his/her own requirements through frequent discussion with his/her principal advisor, and with the Graduate Advisory Committee. This program should provide the student with a thorough grounding in immunology, microbiology, and appropriate related basic sciences and practical laboratory experience. Following the demonstration of competency in the areas encompassed by the core curriculum and other elective courses, and the acceptance of a dissertation proposal, students will then essentially devote themselves full time, with participation in general departmental activities, to their dissertation research. The research program will be carried out under the guidance of a designated principal advisor and a dissertation committee. Following agreement by the student, advisor, and dissertation committee that a suitable stage in the research program has been reached, the student will prepare and present a dissertation demonstrating the ability to carry out research and make contributions to the area of investigation.

All students must meet the basic requirements of The Graduate College. Passage of the preliminary examination as partial fulfillment for entrance into candidacy for the Ph.D. degree is dependent upon demonstrated competence in the fields of immunology or

virology. This can be achieved by participating in the recommended program of lecture and tutorial courses of both a basic and advanced nature which may be supplemented by independent study. Other requirements, as specified by the student's dissertation advisory committee, may be met by completion of lecture, tutorial, or laboratory courses in other divisions of The Graduate College.

Courses in pharmacology, histology, pathology and statistics are considered relevant to training in immunology and virology; these are available as part of the student's academic program but are not considered essential for all students. It is anticipated that courses in some subjects considered essential for a particular student's academic program will not be available in The Graduate College. Such requirements may be met either by special arrangement with the faculty of other institutions or by enrolling in such courses available at other institutions within the geographical area. Faculty assistance in the identification of these courses and supporting tutorial instruction will be arranged. Involvement also is required in the immunology/microbiology department research conferences and journal clubs.

Assessment of Progress. The academic progress of each student is continuously assessed by each faculty member with whom the student has worked. Instructors are free to use whichever system of assessment they wish to apply, provided their criteria are made explicit.

To be in good standing, a student must maintain a cumulative grade point average of 3.0 (A=4.0) or better. A student whose cumulative GPA falls below 3.0 will be placed on probation. A student on probation must attain a cumulative GPA of 3.0 within two quarters (excluding summer quarter).

A student who receives a grade of C in more than two required courses will also be placed on probation. For any student on probation, failure to regain good academic standing within two quarters constitutes grounds for dismissal.

Evaluation of the overall progress of a student is based on reports received annually from the principal advisor and the dissertation advisory committee. The reports describe the status of academic achievement, the progress of research and laboratory activities, and identify projected requirements for the remainder of the program.

It should be stressed that the purpose of such assessment and examination is primarily to aid the student in achieving academic goals by determining depth of understanding of the several areas of study and, when necessary, by identifying problems in order to enlist the aid of

other faculty to assist the student in his/her training. Considerable importance in this continuous assessment is placed on the student's ability to communicate. Guided development of the skills required for both literary and verbal presentation of knowledge and ideas, as well as their formulation, is an important responsibility of the faculty in this program.

Preliminary Examination. A written preliminary examination is given at the end of the first year of study. This examination covers the recommended core program and successful completion is required for proceeding into candidacy.

Graduate Advisory Committee. A committee consisting of three elected faculty members, the head of the admissions committee, the chairperson of the Department of Immunology/Microbiology and the division director (appointed by the chairman) shall participate in the administration of this program. The functions of this committee are: to assist each student in the design of an appropriate academic program; to guide both the student and faculty in advisor selection and in the appointment of the dissertation advisory and dissertation examination committees; to ensure the continued satisfactory progress of the student; and to initiate any necessary changes in or additions to this program. The Graduate Advisory Committee also shall review annually the progress of each student throughout the program and shall report annually to the faculty of the division on the progress of each student.

Dissertation Advisory Committee and Dissertation Proposal. Concurrent with the development of a research program and within 10 quarters of admission, the following three steps should be taken and accepted by the Graduate Advisory Committee for the student to continue in the program:

1. formulation of a dissertation advisory committee that shall have five or six members including the principal advisor, three or four faculty members and one "outside" individual with recognized expertise in the candidate's field of interest, selected jointly by the candidate and principal advisor. The outside individual, not of the division, should be a faculty member of an institution of higher education, active in research in the student's area of investigation and willing to maintain active contact with and advise the committee and student concerning the progress of research training for the duration of the candidacy. When

additional advisors are required, these also shall be members of the dissertation advisory committee. The chairperson of this committee shall be an active member of the Department of Immunology/Microbiology. Each student will be required to meet with his/her dissertation advisory committee every six months.

2. presentation to and acceptance by the dissertation advisory committee of a dissertation proposal that should constitute a scholarly outline of work intended, leading to research that will contribute to existing knowledge. The proposal should include a review of the relevant literature, and a detailed outline of the proposed research demonstrating an understanding of the technical and theoretical aspects of the experimental protocols. The student will be required to defend this proposal before the dissertation advisory committee and, if indicated, the Graduate Advisory Committee. This document is considered a blueprint for a suitable dissertation project at the time it is prepared and accepted. Changes in project or strategy during the student's dissertation research may be made with the approval of the advisor and the dissertation advisory committee.
3. successful completion of course work identified in the student's academic program, and adequate performance in a written preliminary examination administered by the Graduate Advisory Committee.

Dissertation. Following admission to candidacy the student shall devote full time to research activities under the guidance of the principal advisor and dissertation advisory committee, and shall be actively involved in all the scholarly pursuits of the Department of Immunology/Microbiology, including tutorials, seminars and journal clubs. The student is expected to seek opportunities to gain experience in teaching and to be involved in the teaching activities of the faculty to the extent that this does not interfere with the progress of the research program.

A student must demonstrate research accomplishment and written communication skills by submitting two or more first-author research papers to refereed journals. The manuscripts may be incorporated into the student's dissertation.

Following at least four quarters of research activity and agreement by the student and the dissertation advisory committee that research progress is such that a dissertation may be

prepared and presented, the Graduate Advisory Committee shall be notified. At least three months prior to the expected date of completion, a timetable will be set by the Graduate Advisory Committee providing a deadline for submission of the dissertation and times for presentation and defense of the dissertation. Additional examinations also may be required and a timetable will be established for these.

The Graduate Advisory Committee will appoint a dissertation examination committee for each candidate. The examination committee shall be composed of the dissertation advisory committee of the student and any additional members of the faculty of The Graduate College deemed appropriate. The dissertation examining committee may, through consultation with the Graduate Advisory Committee, request evaluation of the written dissertation by at least one scientist (external examiner) of international stature in the field of investigation who is not affiliated with Rush University.

The role of the dissertation examination committee is to evaluate the student based on the following: presentation and general defense of the scientific basis of the dissertation in an open lecture; reports of any external examiner(s) concerning the standard of scholarly research presented in the dissertation and an oral defense of the dissertation before the examining committee and approval of the written dissertation.

The dissertation examination committee may request additional examination of the student or evaluation of the dissertation before a recommendation on approval is made to the Graduate Advisory Committee. Upon agreement that the student has satisfactorily met the requirements for the award of the degree of doctor of philosophy, the chairman of the dissertation examining committee and the program director communicates their recommendation to The Graduate College. If within ten quarters following entrance into candidacy the student has not submitted a dissertation or the dissertation advisory committee has failed to notify an intent to submit a dissertation, the Graduate Advisory Committee may assume the role of dissertation advisory committee to evaluate the progress of the student and suggest modifications that would enable candidacy requirements to be completed within one calendar year. It is expected that students will complete the program in less (generally four or five years) than the seven-year maximum period specified by The Graduate College. Requests to the division director and The Graduate College Council for extension of enrollment beyond this period will be considered only under exceptional circumstances.

Research Activities

Areas of current interest in which research training is offered include the immunobiology of the inflammatory response; the complement system, with special emphasis upon C-reactive protein and the acute phase response, and the proteins related to amyloid; mechanisms of complement activation by endotoxin, the control of the complement attack mechanisms and the pathophysiology of complement deficiencies; immunopharmacology, cellular immunology, particularly cell-mediated mechanisms in inflammation; immunobiology of transplantation; growth factors and receptors; the molecular genetics of antibody formation; mechanisms underlying the allergic response; immune interactions of cells and membranes. The training in virology, includes transcription, replication, and final assembly of negative strand

RNA viruses, cellular receptors for human hepatitis B virus, the immunopathogenesis of AIDS; and the molecular pathogenesis of avian reoviruses which cause arthritis. The application of basic research to questions of human health and disease is a general commitment of the faculty of this program.

The current annotated departmental research report is available on request.

Service and Clinical Activities

In addition to offering the graduate program and conducting active research programs, the department teaches immunology and microbiology to medical students, offers an allergy/immunology residency program, and maintains a close affiliation with the hospital's clinical immunology and microbiology laboratory.

Division of Medical Physics

Philosophy

The Division of Medical Physics offers two programs of study and research leading to graduate degrees. The faculty members of the division are active in theoretical and experimental research in medical physics and its clinical applications. The diversity of interests of the faculty allows the division to offer graduate degree programs that can satisfy the interests and needs of students in several areas of medical physics: dosimetry; imaging applied to medicine; radiation sources; physics of radiation therapy; physics of diagnostic radiology, physics of nuclear medicine and radiation protection.

The programs lead to the following degrees:

- Master of Science with a major in Radiological Sciences
- Doctor of Philosophy with Medical Physics as the area of interest.

In addition to the degree programs, the division offers postdoctoral training in medical physics for individuals who have doctorates in physics or physical science. The division also permits students at large to register for course work.

The counterpart Department of Medical Physics of the College of Health Sciences offers a master of science degree with a major in medical physics.

Admission Requirements

In addition to the basic requirements established by the Graduate College, the division of medical physics has requirements for admission to its programs.

Radiological Sciences Master of Science Program. Applicants for admission to the division will be evaluated initially by the division director and the admissions committee. Considerations will include the applicant's overall academic record, evidence of previous ability to pursue independent studies successfully, recommendations from the applicant's former faculty, and a description of the applicant's scientific research interests. The program director also will determine whether additional supporting evidence would aid evaluation of the application and, if so,

will make appropriate arrangements with the applicant. An interview may be requested.

The Graduate Record Examination (GRE) is not required, although it is highly recommended that applicants take the verbal, quantitative, and the appropriate advanced tests. Further information regarding the GRE may be obtained from the Educational Testing Service, P. O. Box 6004, Princeton, New Jersey 08541-6004.

Applications for admission will be accepted by the division for any quarter of the year. Applicants to the program should have received an M.D. or D.D.S. degree from an accredited institution prior to enrolling in the program. The studies required for the masters degree may be carried out concurrently with a residency program provided prior approval is given by the chairmen of the departments and divisions involved. A cumulative grade point average of 3.0 (A=4.0) is required.

Medical Physics Doctor of Philosophy Program. The Division of Medical Physics seeks students who demonstrate motivation toward research and teaching, as well as a capacity for independent study in their undergraduate or graduate education. Applicants for admission to the division will be evaluated initially by the division director and the admissions committee. The division director will determine whether additional supporting evidence would aid evaluation of the application, and, if so, will make appropriate arrangements with the applicant. An interview may be required.

All applicants must meet the following criteria for admission:

- hold a bachelor of science degree in physics from an accredited college or university or
- a bachelor of science degree in physical science with a minor in physics from an accredited college or university
- completion of course work in physics--mechanics, heat, atomic and nuclear physics, thermodynamics, and quantum mechanics. If the student is deficient in physics courses, additional courses will be required.
- completion of one year of college chemistry

with laboratory. This requirement may be satisfied within the Ph.D. program.

- cumulative grade point average (GPA) of 3.0 in college work
- cumulative science GPA of at least 3.0 in college work
- prior success in pursuing independent study
- foreign applicants submit Test of English as a Foreign language (TOEFL) results
- results of the GRE taken within the last three years. It is recommended that the GRE subject examination in physics also be submitted.
- three letters of recommendation from previous college or university instructors
- a written description of the applicant's scientific research interests

Applications for admission will be accepted for all quarters of the year. Incoming students with no graduate training should apply for the fall quarter due to the scheduling of required courses. Applications for the fall quarter will be accepted until February 15, and a decision will be sent to the applicant by May 15. Later applications for the fall quarter may be accepted if space is available. Students with medical physics and research experience may apply for admission to begin graduate study during any quarter of the year.

Curriculum

Radiological Sciences Master of Science Program. The studies required for the master's degree may be carried out concurrently with a residency program, provided prior approval is given by the chairman of the department in which the resident is being trained. The Master of Science degree is designed to be completed by full-time students in one calendar year; part-time students will, of course, require more time. Each student will submit a thesis on his/her research and will take a final examination in defense of the thesis.

Medical Residents in Therapeutic Radiology. The following courses are required for medical residents in therapeutic radiology:

MPH 457, 458, 481, 482, 483, 484, 492, 531, 598

The sequence of courses MPH 501, 502, and 503 may be chosen as electives in the master's degree program.

Medical Residents in Diagnostic Radiology and Nuclear Medicine. The following courses are required for medical residents in diagnostic radiology and nuclear medicine:

MPH 457, 458, 460, 461, 464, 465, 471, 475, 490, 598

The sequence of courses MPH 501, 502, and 503 may be chosen as electives in the master's degree program. Various other elective courses are available at Rush University.

Medical Physics Doctor of Philosophy Program. The Ph.D. program is based on a study and research schedule that should be completed within four to five years of full-time study beyond the bachelor's degree. The minimum residency requirement established by The Graduate College is eight quarters of full-time enrollment. During the first year, the student will be committed to completing required course work and deficiencies, if any. During the second and later years, required courses will be completed, and the student will be encouraged to enroll in appropriate advanced courses within The Graduate College. Ordinarily, research will begin during the latter part of the second year, and it will continue as the primary activity throughout the third and later years. The following courses are required:

MPH 457, 458, 461, 463, 471, 501, 502, 503, 505, 506, 531, 590, 699, 1 course in physiology, 1 course in anatomy, 1 course in electronic circuits.

The following are a list of elective courses given by the Division of Medical Physics:

MPH 465, 475, 481, 484, 486, 504, 542, 565, 575, 581, 582 and 583.

A student may choose electives from a variety of other courses available at Rush University.

Academic Policies

(Additional policies are listed in The Graduate College and in the Academic Information sections).

Radiological Sciences Master of Science Program. A minimum of 48 quarter hours of required courses, including research, is required for the Master of Science degree with a major in Radiological Sciences. Of these a minimum of 18 quarter hours of medical physics courses (excluding research) is required. A minor is not necessary in this program. Students must maintain a cumulative GPA of 3.0. The maximum

amount of credit acceptable for transfer from another institution is 12 quarter hours. There is no foreign language requirement. The time limit for completion of the program is five years.

Academic Progression. The graduate program director will function as the academic advisor to the new student. The director will determine the course schedule with the student and will monitor the student's progress.

As soon as practical after the student has entered the program, he/she should select the area of research he/she wishes to consider for the master's thesis. The student should seek out a faculty member of the Division of Medical Physics who will accept the supervisory role of scientific advisor.

Once an advisor is chosen, the advisor and the student will assemble an advisory committee of five members, at least three of whom are on The Graduate College faculty. The advisor will serve as the chairman of the advisory committee. The committee will be responsible for adapting continued course work to the student's needs and for providing advice and evaluation at all stages of the graduate education. Specifically, the committee will evaluate the thesis proposal, the thesis, and the performance at the thesis defense.

Before the specific thesis research is begun, a detailed proposal, including a literature review, must be presented to the student's advisory committee. At that time, the student will be required to defend orally, demonstrating an understanding of the goals and methods of his/her study. When the committee is satisfied with the proposal, the student may begin the research project. Although research will be closely supervised by the major advisor, attainment of the research goals is the student's responsibility.

Thesis Defense. Thesis. The thesis is a scholarly work based on an original project. Its format and review by the advisory committee and dean must comply with the requirements of The Graduate College.

Thesis Defense. The final examination may be taken upon acceptance of the thesis by the dean of The Graduate College and must precede the projected date of graduation in accordance with a schedule determined by The Graduate College.

Oral defense of the thesis serves as the final examination in partial completion of the requirements for the M.S. degree. The examining committee consists of a minimum of five faculty members approved by the division director and graduate studies committee. At least three examiners, including the student's

principal and associate advisors, will be selected from within the division. Two examiners may be selected from outside the division, preferably, though not necessarily, from outside the University. Distinguished scientists may be invited as guests of the division to examine the thesis and to participate in the final defense.

Passing the final examination is based upon the recommendation of the majority of the examiners. In the event that the student fails to pass the final examination, the student may appeal to the dean of The Graduate College who, upon consultation with all parties concerned, may recommend a course of action to be taken.

Medical Physics Doctor of Philosophy Program. A minimum of 40 quarter hours of medical physics courses (excluding research) must be completed successfully. Additionally, at least 18 quarter hours of minor course credit are required. A grand total of 150 quarter hours of academic credit is required for the Ph.D. degree. A maximum of 60 quarter hours of transfer credit will be accepted. There is no foreign language requirement.

Academic Progression. The graduate program director will function as the academic advisor to the student during the first year. The director will, during this time, determine the course schedule with the student and will monitor the student's progress.

Toward the end of the first year, the student will be expected to take a qualifying examination that covers basic physics, therapeutic and imaging physics, radiation protection, transfer function analysis, and current topics discussed during the medical physics seminar series. This examination includes written and oral components. Based on the results of the qualifying examination and performance in course work, the student may be permitted to continue in the program without conditions. If the student's performance is poor, he/she may be either permitted to continue with added requirements of a remedial nature or dismissed from the University.

During the second year, the student should select the area of research he/she wishes to consider for the Ph.D. dissertation. The student should seek out a faculty member of the Division of Medical Physics who will accept the supervisory role of the scientific advisor.

Once an advisor is chosen, this advisor and the student will assemble a dissertation committee of no fewer than five members, at least three of whom are on The Graduate College faculty. The membership of the dissertation committee shall be approved by the Department Advisory Committee.

Toward the end of the second year, the student is expected to take a preliminary oral examination. This examination is given only after the student has completed all required courses and eliminated all deficiencies. At the oral examination, the student will be required to demonstrate competency in general and clinical medical physics, to demonstrate adequate knowledge in medical physics, to defend the research proposal, and to show his/her understanding of the goals and methods of the proposed study. The oral examination will be conducted by the dissertation committee. The level of performance on this examination will determine whether the student is admitted to candidacy for the Ph.D. degree. Following the examination, the dissertation committee will recommend to the Department Advisory Committee on the admission of the student to candidacy. Students who fail to gain admission to candidacy may be retested one time only, 6 to 12 months after the original examination date.

The student may begin and register for dissertation research after admission to candidacy. The dissertation committee will meet with the student periodically to review the student's progress and provide him/her feedback. Although the research will be closely supervised by the major advisor, attainment of the research goals is the student's responsibility.

Dissertation. The dissertation is a scholarly work based on an original project. Its format and review by the dissertation committee and dean must comply with the requirements of The Graduate College.

The public presentation and oral defense of the dissertation serve as the final examination in partial completion of the requirements for the Ph.D. degree. Distinguished scientists outside of Rush may be invited as guests of the division to

examine the dissertation and to participate in the final oral defense. The dissertation committee examiners recommend whether a student passes the final examination.

Grievances. The Departmental Advisory Committee, at the request of a student, will resolve a grievance between the student and faculty concerning: (1) course grade and preliminary examination result that may result in the student's dismissal, (2) unreasonable delay in completing the dissertation research and (3) failure to pass the final oral defense of the dissertation. The student may appeal the decision of the Departmental Advisory Committee to the Graduate College Council and the Dean according to The Graduate College policies and procedures.

Research Activities

Research by medical physics faculty members includes: the study of basic mechanisms by which radiation transfers energy to biological and chemical materials; the development of new techniques for directing and measuring various radiations used in the detection, diagnosis, and treatment of cancer; the application of radioactive tracers to diagnosis and to the study of metabolic processes; and the optimization of physical parameters for specific studies in diagnostic medical imaging including radiology, computerized radiography and tomography, as well as nuclear magnetic resonance imaging and radionuclide imaging and dosimetry in radiation therapy, radiation protection, radiobiology and hyperthermia.

Rush University issues an annual research report that summarizes research projects of the entire faculty.

Division of Neuroscience

Philosophy

The Division of Neuroscience of The Graduate College at Rush University offers interdisciplinary education in the field of neuroscience at the doctoral level to prepare students for careers in teaching and research. The diversity of interest and expertise among the faculty of the division provides students with educational and research opportunities in neurophysiology, neuroanatomy, behavioral neuroscience, neuropharmacology, neurochemistry, cell and molecular biology, all of which are important for the understanding of the functions of the central nervous system. The resources at Rush and in the Department of Neurological Sciences allow students the unique opportunity to carry out independent research on the basic neurobiological substrates of various neurological disorders.

Admission Requirements

The program is designed for students interested in teaching and interdisciplinary research careers in the neurosciences. Students with an undergraduate degree or medical and other professional students who wish to pursue graduate study may apply. Students are admitted to the program to start during the fall quarter of a given academic year. Applicants for admission are evaluated by an admissions committee chaired by the Director of the division. Candidates are required to provide three letters of recommendation written by individuals who know them academically. Consideration for admission includes the applicant's overall academic record, the quality of the recommendations, his/her motivation and ability to pursue independent studies and the description of the applicant's scientific research interests.

Minimal admission criteria to the program are consistent with the general requirements of The Graduate College and include a score of at least 1,500 on the Graduate Record Examination and a grade point average of at least 3.0.

Curriculum

Courses. The program is preceptor based. The study and research schedule outlined below should be completed within four to five years of full-time study beyond the bachelor's degree. The minimal residence requirement established by The Graduate College, which is eight quarters of full-time enrollment of at least 12 credit hours per quarter, is followed. During the first two years, students are expected to complete required course work and deficiencies, if any. First year required courses consist of the medical college neurobiology (NEU 451) and physiology (PHY 451 and PHY 452) courses. A graduate student is expected to receive a grade of at least B in these courses. In addition, a graduate student's committee will advise the student to take at least two additional basic science courses offered by the medical school (or The Graduate College) to be chosen from among neuropharmacology (the Alternative Curriculum course), biochemistry, various courses offered in cell and molecular biology, immunology and microbiology depending on background and need for thesis research. In the summer quarter of the first year of study and the fall of the second year, all students are required to enroll in and pass a statistics and experimental design course.

During the first two years of study, students rotate through various laboratories involved in the program and learn certain techniques commonly in use in neuroscience laboratories. The requirement is mastery of four techniques outside the one(s) that is (are) used by the student in his/her research.

The major required course in the second year of study is an Advanced Neuroscience Proseminar (NEU 591) taught jointly by participating faculty. A seminar format is used that encourages extensive discussion and student participation.

A course entitled "Selected Topics in Neuroscience" (NEU 690) is available to advanced students (in their third or fourth year of residence) for credit. The offerings in this course change from year to year depending on demand and interest, and the course is taught by different faculty members.

In addition to coursework, students are encouraged to participate in and carry out independent research in their first two years of residence.

Academic Policies

Students are required to pass a combination of oral and written comprehensive examinations towards the end of their second year and after completion of the required course work. If a student fails the comprehensive examinations, he/she will be given a second chance six months later. A student who fails again will be terminated.

Throughout the first two years of required course work, a student whose grade point average falls below a B will be placed on academic probation.

A student who completes the comprehensive examinations successfully is admitted to candidacy and qualifies for the Ph.D. dissertation proposal defense. Students choose a preceptor to supervise their research during the first year of residence. The preceptor and the student gather an advisory committee which is chaired by a core faculty member of the program, and includes the preceptor and three other members, one from within the program, one from another division within the institution, and one neuroscientist from another institution. The thesis proposal should be in the format of an NIH grant application and will be defended before the advisory committee.

The rest of the student's time in residence is spent on the Ph.D. dissertation research. Each student dissertation is evaluated by a neuroscientist from another institution who is an expert in the specific area of research.

Additional policies are listed in The Graduate College (page 105) and in the Academic Information sections (page 25).

Research Activities

The background and expertise of the faculty cover a broad range of fields within the neurosciences such as behavioral and cognitive neuroscience, neurophysiology, neuroanatomy, neuro- psychopharmacology, cell and molecular biology, etc. Research among the faculty is especially strong in the following areas: transplantation and regeneration; the neurobiological bases of normal memory and of its dysfunction; aging; the neurobiological bases of degenerative disorders, such as Alzheimer's disease and Parkinson's disease; movement control; and the pathophysiology of epilepsy and visual physiology. Thus, depending on interest, numerous interdisciplinary research areas are available to the student.

Division of Pharmacology

Philosophy

The Graduate Division of Pharmacology offers research training in modern molecular pharmacology and cell biology which leads to the award of the Doctor of Philosophy degree. The faculty is committed to research programs which advance knowledge in specific, focused aspects of these disciplines. Students are included as research trainees and they are offered the opportunity to fully participate in the discovery process and to become independent investigators, themselves. This is the sole objective of the training program.

Admission Requirements

Most applicants should consider fall quarter entry into the program to begin a recommended coursework sequence. However, applicants with previous research experience and a clearly identified research training plan in this program may apply for entry at any time of the year.

In addition to the basic requirements established by The Graduate College, the Division has the following requirements for admission to its program:

- A degree from an accredited college which includes a background in biological, physical or quantitative sciences.

Recommended prerequisites include courses in biology, cellular biology, molecular biology, physics, chemistry, organic chemistry, biochemistry, physical chemistry and mathematics, including calculus.

- Academic transcripts from all baccalaureate and post-baccalaureate educational experiences. These should provide evidence of excellent academic performance, which will usually be expressed by a minimal grade point average of 3.0 overall and 3.5 in science courses (A = 4.0).
- A clear, concise expression of the applicant's interests and goals.
- Three letters of recommendation from

science faculty who can evaluate the character of the applicant.

- The College makes basic admission requirements of all applicants. Please review the Graduate College description and the specific section on Program Admission.

Applications will be evaluated by the director and the Admissions Committee, who will base their recommendation on several factors. All prior academic experience and the letters of recommendation will be evaluated for an indication of the applicant's potential for success as a graduate student. The statement by the applicant describing goals and motivation will be studied to determine the compatibility between the applicant's requirements and the capabilities of the graduate program. With rare exceptions, applicants will be required to appear for an interview with faculty members before admission to the program.

Curriculum

This program is based on a study and research schedule that should be completed within a three to six year period of full-time study. During the first year, the student is usually committed to completing course work, and begins research training. During the second and later years, courses may be taken, but research continues as the primary activity.

Each student will design a course plan which is appropriate for personal scientific development. The faculty will provide advice and direction in close cooperation with each student regarding courses from all resources in this school and other schools in the Chicago area. The purpose of coursework in this program is to establish a strong base of knowledge for development of the individual in the ultimate area of scientific pursuit. Therefore, a highly individualized approach with a minimum of standard requirements is favored by the faculty. In every case, the student's previous academic accomplishments and current requirements will be balanced when structuring a curriculum.

Academic Policies

Additional policies are listed in The Graduate College (page 105) and in the Academic Information sections (page 25).

Academic Advisor, Principal Advisor. The graduate division director functions as the academic advisor to the student during the first year. The director, during this time, determines the course schedule with the student and monitors the student's progress. Beginning in the first year, the student is expected to gain laboratory experience. This activity is intended to lead to the definition of research interests and to the selection of a principal advisor. The principal advisor, a faculty member in the Division of Pharmacology, then accepts the supervisory role in the development of the student as a scientific investigator.

Academic Requirements. Each student will be responsible for satisfactorily completing a recommended sequence of courses. This division requires a grade of B or better in all recommended courses. Elective courses may be taken for a grade of Pass/No Pass. Students will be allowed adequate opportunity to remedy a course grade deficiency on an individual basis. However, failure to maintain adequate grades in courses is considered cause for dismissal.

Student Grievance Procedure. A plan for resolving any grievance involving a graduate student in this division is in place. The written procedures are available in the office of the director.

Dissertation Committee. After the Principal Advisor is chosen, the advisor and the student will assemble a Dissertation Committee. This committee consists of five members, no more than four to be Division of Pharmacology faculty members. The committee is responsible for providing advice and evaluation at all points of the student's graduate education experience. Specifically, the committee will advise the development of the dissertation proposal and evaluate the proposal, it will advise the development of the dissertation, and it will evaluate and judge the finished dissertation and its presentation and defense.

Dissertation Proposal Presentation. The student will present and defend the dissertation proposal upon the recommendation of the principal advisor and the Dissertation Committee. This will include an exhaustive literature review, clear objectives for the project, detailed methods, a critical preview of the potential results, and an evaluation of the potential impact of the project. The proposal will be written and it will take the form of an NIH grant application. It will be submitted to the committee for review and evaluation several weeks prior to the oral presentation and defense. In addition, the faculty will actively evaluate the student's base of knowledge in the relevant disciplines. Successful satisfaction of this requirement will gain the student admission to doctoral candidacy, and the student will proceed with dissertation research. Lack of success at this stage may result in the assignment of additional coursework or other preparation, a second proposal presentation after a reasonable period of time, or dismissal.

Dissertation Research. The student is expected to accept the responsibility for attainment of the research goals as they are presented in the approved dissertation proposal. The principal advisor will maintain close supervision of the process. Once the research is complete, the student will present a reading copy of the dissertation to the Dissertation Committee for its evaluation and comments. The committee is responsible for offering suggestions to the student on how the work may best be presented in a dissertation. Following the advice, the student will complete the dissertation and make a formal presentation of it to the Dissertation Committee and the available scientific community. The awarding of the Ph.D. degree requires the demonstration of a capability for independent research and a contribution to scientific knowledge as judged by the Dissertation Committee, the Division of Pharmacology Faculty, the Dean of The Graduate College and The Graduate College Council.

Master's Program

The training for the master of science degree is offered to those who have completed supporting coursework, such as biochemistry, cell biology and statistics, and who wish to develop their capabilities in a setting of supervised research. Typical applicants would be senior medical students, medical residents or fellows. This is not an entry level degree program, but rather, one which contributes to an existing career track.

Once the applicant enters the program, a research advisor is assigned and the student begins directed research on an active project, often as an integral member of a team. The experience should require one year, during which the student is critically evaluated for development of skills and understanding related to the research process. A thesis, which describes the work accomplished, is required. It will be presented in written form and as a presentation at the conclusion of the training period.

Concurrent M.D./Ph.D. Program

The graduate program in pharmacology will be offered to the student who has been admitted to both the graduate program in the Division of Pharmacology and to Rush Medical College and who elects to begin both programs of study in the same year. During the first two years, the student will complete the recommended courses in the pharmacology graduate program as well as

the regular medical college curriculum for that period of time.

The student will then interrupt Rush Medical College enrollment and concentrate full-time on graduate studies in the Division of Pharmacology. When the graduate work is complete the student will continue with the clerkship program in the medical college. The student will be strongly encouraged to begin a research program during the summer before course work begins. Research can be included in the curriculum at any time. After the second year, the student will begin full-time enrollment in The Graduate College, and the clerkship program in Rush Medical College will be delayed until the graduate work is complete. During this time, the student will complete the required course work, enroll in advanced or elective courses, present and defend a suitable dissertation proposal, complete dissertation research, and present and defend an acceptable dissertation. The Ph.D. degree will be awarded by The Graduate College upon the successful completion of this training program. The student continues with the clinical training in Rush Medical College. Students who are admitted to the Division of Pharmacology graduate program and to Rush Medical College but who do not begin these study programs at the same time may also benefit from this combined curriculum. An individual study program which includes available aspects of this curriculum can be designed for such students.

Students who enter this program are subject to the full conditions and requirements of both colleges.

Division of Physiology

Philosophy

The program of the graduate Division of Physiology provides state-of-the-art training in the most quantitatively oriented areas of modern physiology and biophysics. To this end a limited number of students are invited to join particular research laboratories as predoctoral fellows, and most of the training occurs in this setting. The sole goal of the faculty is excellence in research and it expects to develop a nucleus of students who will become future leaders in the field.

Admission Requirements

Students who desire to specialize in this program are strongly advised to obtain a broad scientific foundation, including work in the related sciences. Courses in some or all of the following fields are suggested for attainment of this objective: physics, including electronics; chemistry, including physical chemistry; mathematics, including differential equations; molecular and cell biology or cell physiology.

An applicant who holds a degree from an accredited institution will be considered for admission on the basis of the following criteria:

- an undergraduate record of superior quality demonstrating proficiency in quantitative science;
- a well organized plan for graduate study and research compatible with expertise in the division;
- recommendations from at least three college faculty members acquainted with the character of the applicant;
- ability to function in a program stressing an independent approach to the acquisition of knowledge;
- other materials required by the division director.

The Graduate Record Examination (GRE) is recommended but is not required. Except in unusual cases, the minimum prerequisites for admission will be the attainment by the applicant of a 3.0 overall average ($A = 4.0$) in undergraduate studies with a 3.5 average in science courses, preferably including two years of physics or

engineering, inorganic and organic chemistry, physical chemistry, advanced calculus, ordinary differential equations, cell biology or cell physiology.

Applicants for admission to the division will be initially evaluated by the division director and Advisory Committee. Considerations will include overall academic record, evidence of previous ability to pursue successfully independent studies, recommendations of the applicant's undergraduate faculty, and the description of the applicant's scientific research interests. The division director also will determine whether additional supporting evidence would aid evaluation of the application and, if so, will make appropriate arrangements with the applicant to submit such evidence.

Applications judged by the division director to demonstrate satisfactory credentials and interests compatible with the research facilities of the faculty will then be evaluated by all faculty members with expertise in the area(s) of interest of the applicant. Considerations in this phase will include not only academic ability but also the resources available to support research in the indicated area. An interview may be requested. Selection of applicants will be by invitation of a faculty member in the division willing and able to serve as the student's principal advisor and research sponsor after endorsement of the selection by the division director, The Graduate College Council, and the dean. In special circumstances, exceptions to this procedure may be made for students with unusual promise but with no firm commitment to a particular area of research. In such cases, the program director will serve as interim principal advisor. Finally, in the case that the division director would be the principal advisor of a student, the physiology department chairperson shall assume the duties of division director with respect to that student.

Curriculum

Courses. Usually prior to starting the program students will have selected a faculty member as principle advisor. All students admitted to the division will be required to enroll in the medical physiology course as soon as possible after admission, and before the dissertation proposal, and obtain an average grade of B or better over all quarters. The student will, in the first two years enroll in courses appropriate to the student's research interests as agreed upon in

consultation with the principal advisor and the director of the graduate program.

It is anticipated that courses deemed essential to the student's graduate training by the division occasionally will not be available in the Division of Physiology or other divisions of The Graduate College. In this case, arrangements will be made for the student to enroll in such courses at other institutions and performance in these courses will be required to be at the same level as for courses at Rush. In certain circumstances, a program of supervised independent study may be recommended as an alternative to particular course work.

Individual course requirements may be exempted on the basis of a past academic record or by the successful completion of a special examination covering the content of the required course. Such exemptions will not be made automatically solely on the basis of a past academic history but will be carefully judged on an individual basis by the division director and Advisory Committee. Unless waived, students will enroll in eight credit hours of course work outside the Division of Physiology.

Course Offerings. The following courses will be available, subject to demand and limitation, to graduate students within The Graduate College:

- PHY 451 Physiology I
- PHY 452 Physiology II
- PHY 502 Introductory Membrane Biophysics
- PHY 503 Physiology of Striated Muscle
- PHY 504 Neurophysiology
- PHY 521 Mathematical Methods
for Physiologists
- PHY 523 Circuit Theory and Practical Design
- PHY 531/532 Physiological Modeling
- PHY 590 Special Topics in Physiology
- PHY 598 Introduction to Research
- PHY 640 Applied Electrophysiology
- PHY 641 Molecular Mechanisms in Control
of Ion Permeability
- PHY 651 Advanced Topics in Muscle
Physiology
- PHY 653 Problems in Synaptic Physiology
- PHY 655 Sensory Neurophysiology
- PHY 690 Research Topics in Physiology
- PHY 699 Dissertation Research

Academic Policies

(Additional policies are listed in The Graduate College and in the Academic Information sections.)

Dissertation Proposal. Upon admission to the division, the student and his/her principal advisor shall begin to make preparations for a proposal upon which the student's original research project will be based. Such preparations will include intensive study of the literature in the student's field of interest, instruction in the basic laboratory skills necessary for professional development in the field, and any other requirements established by the principal advisor and division director, in addition to the course requirements discussed above.

No later than 36 months after admission, the candidate shall present to his/her dissertation committee an original proposal for contribution to knowledge in his/her area of specialization. It shall include an extensive review of the relevant scientific literature, a description of the technical aspects of the proposed studies, an outline of the anticipated experimental approach to the major problem of interest, and a discussion of possible results and their interpretation. The student will be expected to defend both his/her proposal and general ability to achieve professional competence before this committee.

The dissertation committee shall have at least three members: the principal advisor; the division director; and, whenever possible, an individual outside the institution with national stature in the candidate's field of interest selected jointly by the candidate, principal advisor, and division director. In addition to evaluating the content of the dissertation proposal, the outside member shall have a responsibility to maintain close and frequent contact with the student and principal advisor and to advise the division director concerning the progress of the academic program. Ordinarily, the dissertation committee shall be constituted as soon as possible after admission of a student to the division.

The dissertation proposal may be submitted to the faculty prior to completion of course requirements in order to enable research activity to begin, but the student will not be formally admitted to candidacy until this is satisfactorily completed.

Candidacy. Upon acceptance of the dissertation proposal, the student shall be admitted to candidacy for the Ph.D. and shall be expected to devote fully his/her energies to the program. A minimum residency requirement of one calendar year following admission to candidacy must be met by all students unless special exceptions

are granted by the division director and dean. The principal advisor shall make frequent reports to the division director concerning the student's progress, and should either faculty member or the candidate feel it appropriate, the dissertation committee can be called into session to judge the student's continued participation in the graduate program or to determine possible alterations in the area of his/her research efforts. In addition, the student and principal advisor will be expected to consult periodically with the other committee members who may also request the division director to call formal meetings of the dissertation committee.

Conflicts between the student and/or any members of the dissertation committee not resolvable by the full committee may be referred to the advisory committee of the division or higher authority as specified in the policies and procedures of The Graduate College.

The degree of doctor of philosophy is given in recognition of high attainment and ability in a particular field of scientific research as evidenced by submission of a dissertation showing power of independent investigation and forming an actual contribution to existing knowledge. Such dissertation will be submitted to the candidate's dissertation committee for review and defended orally at least three months before the degree is granted. The dissertation committee will ordinarily request an evaluation of the candidate's dissertation by a scientist of national stature not affiliated with Rush University.

Acceptance of the dissertation by the dissertation committee will be reviewed by The Graduate College Council and the dean, along with the candidate's entire academic performance in The Graduate College. Determination of completion of all requirements will result in the dean's recommendation that the degree be awarded at the next scheduled commencement exercises of Rush University.

Should the candidate not have submitted a dissertation three years after admission to candidacy, the dissertation committee shall be convened to evaluate the candidate's progress, and, if proper, to suggest alteration in the program.

Research Activities

Individual Research Projects

Viral Fusion. Fusion between membranes is a widely occurring cellular process. It is a critical event in exocytotic release of neurotransmitters and hormones, fertilization of egg by sperm, viral infection of cells, and intracellular membrane and protein trafficking. To study the process in a biophysically controlled system, Fred Cohen and Grigory Melikyan are

examining the fusion of influenza virus to planar membranes. Influenza virus was chosen because the single protein, the hemagglutinin (HA) glycoprotein, responsible for both binding and fusion, has been cloned and crystallized and its structure resolved at 3 Å. Drs. Cohen and Melikyan fuse cells that express the hemagglutinin (HA) of influenza virus to target cells, and apply the techniques of video fluorescence microscopy and time-resolved electrical admittance measurements. Thus they follow the movements of lipids to monitor the establishment of membrane continuity. After tracking the completion of fusion by monitoring the formation of fusion pores they measure the growth of the pores from formation until the pores are sufficiently large to allow release of the viral nucleocapsid, a release which initiates infection. Drs. Melikyan and Cohen have shown that the ecto- domain of HA induces hemifusion, the merger of contacting monolayer leaflets of membranes with the noncontacting monolayers remaining intact. From their work, they have concluded that the transmembrane domain and possibly cytosolic domain of HA are responsible for pore formation. But once the pore forms, the function of the fusion protein HA is complete. Pore enlargement is independent of the density of HA within the cells and independent of the strain of virus from which HA is derived.

Potassium and Proton Channels. The properties and biological functions of ion channels are long-term interest of Dr. Tom DeCoursey's Laboratory. Potassium selective channels have been good friends to the lab for many years, now joined by the recently-discovered voltage-activated proton channel. Modulation of the voltage-dependence of the channel by pH_o and pH_i ensure that it opens only when the electrochemical gradient for H^+ is outward. In other words, when the proton channels open, they extrude acid from cells. In collaboration with Drs. Vladimir V. Cherny and Vladislav S. Markin, the interrelationships between pH_o , pH_i , membrane potential, and the activation of H^+ channels have been measured and modeled. Dr. DeCoursey's lab has detected proton channels in alveolar epithelial cells and in several types of white blood cells, including human neutrophils. When these immune cells encounter bacteria they engulf (phagocytose) them and kill them by secreting reactive oxygen species (e.g. Clorox®). The biochemical mechanism involved in this process acidifies the white cell, which would prematurely interrupt the killing process, if unchecked. Fortunately, proton channels are activated, relieving the cell of excess acid. The discovery of proton channels must have been a great boon to cells, which

otherwise would have to use other, less efficient means of extruding acid.

In collaborative studies with Drs. Soung Y. Kim and Michael R. Silver, of the Pulmonary Division of the Department of Medicine, the involvement of ion channels in the differentiation of macrophages is being explored. The up- and down-regulation of several types of K⁺ channels in the cells is being evaluated using electrophysiological techniques, as well as molecular biological approaches in collaboration with Dr. Fred N. Quandt, of the Department of Molecular Biophysics and Physiology, and Multiple Sclerosis Center.

Protein Insertion into Membranes and Voltage-dependent Channels. In an independent project, Fred Cohen is collaborating with Dr. William Cramer of Purdue University on studies of colicin E1 in membranes. Colicin E1, one of a family of colicin proteins, is plasmid-encoded by some strains of *E. coli*, kills other strains of *E. coli* that do not harbor the producing plasmid by forming voltage-dependent ion channels in the inner membrane of the attacked cell, and has a known crystallographically-determined structure in solution. It is, thus, an excellent model to determine the physico-chemical principles that control protein translocation from an aqueous phase into phospholipid bilayer membranes and the molecular basis for voltage-gating.

Recently, Cohen and Cramer have been investigated the structural pattern and changes that characterize the translocation-competent state; the folding pattern of the amino acids has been determined. They previously showed that acidic pH or small amounts of detergents, well below their critical micelle concentrations greatly augments channel formation. They have now shown that a hydrophobic domain of the protein, becomes exposed to the aqueous phase when the pH is lowered or detergents added. Further, these treatments increase the protein's susceptibility to proteases. While for other proteins this fingerprint of changes has sometimes been taken to indicate massive unfolding, such is probably not the case with colicin: direct measurements show an unaltered Stokes radius. The changes observed probably reflect increased mobility of residue side chains, which allows accessibility of both protein residues to proteases and the hydrophobic core to water. In additional studies, Cohen and Cramer have used site-directed mutagenesis mutants to characterize the folding pattern of this 35 residue stretch within the bilayer when the channel has formed. Activity and ion selectivity measurements showed that this hydrophobic

stretch spans the bilayer twice in a α -helical hairpin loop in the open channel.

Ion Permeation. Dr. Robert Eisenberg's laboratory is concerned with the mechanisms by which ions move through open channels. Drs. Chen and Eisenberg have constructed a model of a channel as a hole in a dielectric, allowing charge to exist in all its form, and current to flow. A wide variety of physiological phenomena, described in tens of thousands of papers, can be easily explained in this way, as the property of a simple pore. The parameters of the theory just described are macroscopic averages of the atomic properties of the molecules making up a channel. Drs. Chen, Eisenberg, and Elber (of the Department of Chemistry, Hebrew University) have computed the motions of the individual atoms of the gramicidin channel. The fundamental time increment in these calculations is 1×10^{-15} sec, so substantial computing resources are needed to reach even picoseconds (10^{-12} sec). Drs. Eisenberg, Schuss, and Barkai (Department of Mathematics, Tel Aviv University) are seeking a model between the atomic and classical. Building on Dr. Schuss' experience, a stochastic differential equation is used to describe ionic motion in the open channel. Drs. Levis, Eisenberg, Tang and Lynn (Brookhaven National Laboratory) are improving the measurements of channels, using the techniques of high energy physics to allow the much more rapid measurement of the opening of channels.

High-time Resolution Measurements. Dr. Richard Levis' laboratory has been involved in the measurement of L-type calcium channel gating from isolated guinea pig ventricular myocytes for the past several years. These measurements have emphasized Ca channel gating currents (non linear charge movement) and the correlation of the currents with ionic currents measured at both the whole-cell and single channel level. Recent studies have dealt with voltage- and Ca-dependent inactivation and modal gating. Efforts to measure gating currents that are expected to be associated with modal gating have not as yet been successful, but will be pursued further.

Other research, in collaboration with J. Tang and R.S. Eisenberg, involves measurements of large conductance channels (VDAC, and more recently porin) with significantly improved time resolution and bandwidth. These experiments are attempting to measure the time required for conformational changes between open and closed states, as well as among subconductance states. Preliminary results have achieved a time resolution of 1 microsecond (300 kHz bandwidth), and shown that, on average, abrupt ($1 < \tau$ sec)

transitions between states are followed (and apparently also preceded) by more gradual changes in conductance with time courses on the order of 20 μ sec leading to the final steady level of conductance. They have also observed that in the case of VDAC, subconductance levels that appear to be a single level at usual recording bandwidths, are in fact characterized by very brief sojourns between 2, and in one case 3, distinct conductance levels. Dwell times in these levels have a mean duration of approximately 5 μ sec, and therefore cannot be resolved at bandwidths below 50 kHz (which is larger than the highest bandwidth previously used to study these channels). Dr. Levis is confident that these measurements will provide valuable information concerning the molecular events associated with open- close transitions, and place important constraints on structural modeling of the channel proteins.

Finally, in collaboration with K. Lynn and S. Jovanovic of Brookhaven National Laboratory (Upton, NY) and R. S. Eisenberg, Dr. Levis has been involved in the development of an instrument which detects and measures single channel currents in real time. The instrument called a Real-Time Analyzer (RTA) automatically determines the amplitude and number of channels present in a patch, sets appropriate thresholds for their detection, and corrects for baseline drift. Amplitude information, mean open and closed times, and histograms of open and closed durations are presented in real time, allowing far more rapid and efficient experimentation. New algorithms for detection and analysis of channel data are also being investigated.

Computer Aided Education. Research in the laboratory of Drs. Joel Michael and Allen Rovick continues in support of the development of a "smart" computer tutor with natural language capabilities in the domain of cardiovascular physiology. Their current work is focused on uncovering the rules that govern an expert human tutor's use of hints as a tutoring tactic. They have previously determined that two types of hints are used, with each type having varied and complex forms. They are attempting to determine what student responses induce the generation of hints, what determines the kind of hint generated, how the tutor selects the domain knowledge to include in a hint, and when the tutor ceases to hint.

These issues are related to the question of how the expert human tutor models the cognitive state of the student being tutored. There is evidence that the tutor maintains a running appraisal of how well the student is performing in

the current segment of the problem being solved (the local assessment) as well as a more global assessment of how the student has done over all of the problems in the current session. An important contributor to these assessments is how well the student responds to the hints being generated by the tutor.

Drs. Michael and Rovick are currently implementing a new version of the tutor, CIRCSIM-Tutor (v3), that will incorporate their newly uncovered rules for hinting and student modeling.

Regulation of Sodium and Potassium Channels. A balance between the production of Na and K channels which generate action potentials in neurons is normally maintained in order to keep excitability constant. However, almost nothing is known about the processes by which regulation of the number of Na and K channels in neurons occurs. In addition, it can also be asked whether an alteration in channel production occurs in response to physiological stimuli or pathological conditions. Dr. Fred Quandt is determining stimuli and pathways for regulation of these channels in cultured neurons. Regulation of the expression of proteins is often accomplished at the level of transcription. Messenger RNA abundance for Na and K channels is being measured in order to assay the activity of the genes. In addition, the number of functional channels in the neurons is being determined using patch clamp techniques. Dr. Quandt has found that Na and K channel genes can be independently regulated. For example, K channel mRNA and membrane current is down-regulated by an increase in intracellular Ca. Ca influx can occur during normal electrical activity, and this signal may be used to maintain excitability constant. He is presently studying the mechanism by which Ca acts to alter transcription of the Na channel gene.

In a collaborative project with the Institute for Mental Well Being and the Department of Psychiatry, Dr. Quandt is studying the link between GABA-A receptors and panic disorder. Polymorphisms in GABA receptors subunit are being identified and used to determine whether certain alleles are associated with inheritance of the disease.

Regulation of Intracellular Calcium. The goals of Dr. Eduardo Rios' laboratory are to understand mechanisms that generate sudden changes in the concentration of the ion calcium inside cells. These changes control many metabolic responses and functions. Dr. Rios' group is especially interested in these events as they occur in muscles, including skeletal and cardiac muscle. In these tissues, calcium is stored inside

the cell in the sarcoplasmic reticulum. Their work has helped determine the molecular makeup of the system that controls release of calcium from the sarcoplasmic reticulum into the cell.

In collaboration with Lothar A. Blatter of Loyola University, the measurements of release of Ca^{2+} inside a living muscle cell with a laser scanning confocal microscope was performed for the first time. This allowed the detection of the function of individual calcium release channel molecules.

With A. Tsugorka and N. Shirokova the use of a high energy pulsed laser to achieve artificial release of large quantities of calcium inside cells is being utilized. This will help decide whether calcium that is released in turn causes more of the same ion to be released. Such mechanism could underlie the ability of muscle to undergo fast and massive increases in intracellular calcium.

In a collaborative project with Dr. Roman Shirokov, Assistant Professor of Physiology, and Dr. M. Hosey (Northwestern University) Dr. Rios is making mammalian cells in culture transfected with cDNAs to express dihydropyridine receptors, the voltage sensors of muscle. This allows them to study, in the expression system, a

relatively pure population of molecules of known sequence. In the future they plan to alter the sequence in rational ways to understand the roles and mechanisms of different portions of the molecules.

Nonlinear Chaotic Dynamics. Much of physiological science concerns itself with the detection and analysis of "true signals" from out of the background of "noise". The problem, however, is that 1) some signals often look like noise; or 2) other signals are heavily contaminated by noise. Dr. Joseph Zbilut in collaboration with Dr. Charles Webber, Jr. of Loyola University Medical Center, have been studying techniques which help elucidate these problems.

Also, in collaboration with Dr. Frederic Eldridge of the Physiology, Department of the University of North Carolina, Chapel Hill, they have been studying how noise may be important in controlling normal breathing.

A related problem involved quantifying noise in the electrocardiographic signal. With Dr. Thomas Buckingham, we have been evaluating this process in the signal-averaged ECG.

***THE UNIVERSITY PROGRAM
IN
HEALTHCARE AND THE HUMANITIES***

Healthcare and the Humanities

The University Program in Healthcare and the Humanities, housed in the Department of Religion, Health and Human Values, aims to provide a context for healthcare education that serves the student in today's world where cultural diversity is the norm, and where holistic practice is more and more an imperative.

At Rush the humanities include ethics and law, history and philosophy of the professions, philosophy of science, sociology of religion, anthropology, literature and the arts. One of the few university-wide programs, the University Program in Healthcare and the Humanities draws on the resources of the various colleges and their faculties to offer a wide array of lectures, workshops, courses, and events focusing on the human contexts of healthcare: medicine, nursing, allied health and basic sciences.

The Program administers the *James A. Campbell, M.D. Distinguished Lecturer Program*. Recent lecturers have included Timothy Quill, M.D. speaking on physician-assisted suicide; Larry Dossey, M.D., author of *Healing Words: the Power of Prayer and Medicine*; Susan Reverby, Ph.D. speaking on the Tuskegee study; Peter Gerner and Jeff Lyon, recipients of the Pulitzer Prize for their *Chicago Tribune* series on gene therapy. The Campbell Scholars, an interdisciplinary group of students drawn from across the university, are also administered through the program.

The annual *Lori Ann Roscetti Memorial Lecture* on Ethical and Humanitarian Issues in Medicine, administered by the Humanities Program, honors a beloved medical student whose life was tragically cut short while a student at Rush.

The annual Arts Competition, held in the Winter Quarter, is open to all students, faculty, and employees of the Medical Center. Occasionally the program supports or co-sponsors other activities. Recent examples include the first Chicago End of Life Conference and an art exhibit on "AIDS and the Art of Nursing."

Recent presentations, research and publications by humanities faculty have focused

on (1) the suffering of the healer, (2) the use of literature in nursing education, (3) a narrative approach to doctor assisted suicide, and (4) a study of prayer requests by patients and their families, and (5) needs and opportunities for research in the history of medicine through the use of archives.

The following courses have been selected by the faculty of the University Program in Healthcare and the Humanities for inclusion as part of the curricular offerings of the humanities program.

Certificate sequence in Healthcare Ethics

HHV 501	Introduction to Healthcare Ethics
HHV 502	Issues in Healthcare Ethics
HHV 503	Seminar in Healthcare Ethics

Certificate sequence in Spirituality and Health

HHV 501	Introduction to Healthcare Ethics
BHV 524	Cultural Diversity
HHV 538	Spirit/Body/Mind
NUR 522	Health Promotion and Disease Prevention

also

BHV 473	Law & Ethics in Clinical Med.
HHV 526	Narrative and Medicine
BHV 461	Family Health and Literature
HHV 464	Death and Dying
HHV 539	Suffering
HHV 505	Ethics in Research
HHV 510-12	Sem. in Health & Human Values
HHV 576	Ethics for Healthcare Managers
NUR 402	Heritage of Nursing
NUR 406	Nursing & the Human Condition

Faculty include:

Russell Burck, Ph.D., Assoc. Professor
Marcia Bosek, D.N.Sc., RN, Assoc. Professor
Laurel Arthur Burton, Th.D., Professor
Stuart Campbell, Ph.D., Asst. Professor
Barbara Haynes, Ph.D., RN, Asst. Professor
JoAnn O'Reilly, Ph.D. (cand), Asst. Professor
John Rowe, Ph.D., RN., Asst. Professor
Mark Sheldon, Ph.D., Assoc. Professor
Susan Zinner, J.D., Asst. Professor

COURSE DESCRIPTIONS

ough they usually follow a similar pattern, courses are listed alphabetical by course prefix
the descipline, following the scheme below:

ALT	ALTERNATIVE MEDICAL CURRICULUM
ANA	ANATOMY
BCH	BIOCHEMISTRY
BHV	BEHAVIORAL SCIENCES
CCS	CLINICAL CONCEPTS AND SKILLS
CEL	CELL BIOLOGY
CLS	CLINICAL LABORATORY SCIENCES
DRM	DERMATOLOGY
FAM	FAMILY MEDICINE
HCE	HEALTH CARE EDUCATION
HHV	RELIGION HEALTH AND HUMAN VALUES
HSM	HEALTH SYSTEMS MANAGEMENT
IMM	IMMUNOLOGY
MED	INTERNAL MEDICINE
MIC	MICROBIOLOGY
MPH	MEDICAL PHYSICS
MTK	MEDICAL TECHNOLOGY
NAN	NURSING--ANESTHESIA
NEU	NEUROLOGICAL SCIENCES
NTR	CLINICAL NUTRITION
NUR	NURSING
OBG	OBSTETRICS AND GYNECOLOGY
OCC	OCCUPATIONAL THERAPY
PED	PEDIATRICS
PHR	PHARMACOLOGY
PHY	PHYSIOLOGY
PMR	PHYSICAL MEDICINE AND REHABILITATION
PPH	PATHOPHYSIOLOGY
PRF	PERFUSION TECHNOLOGY
PSC	PSYCHOLOGY
PSY	PSYCHIATRY
PTH	PATHOLOGY
PVM	PREVENTIVE MEDICINE
RAD	RADIOLOGY
SHS	SPEECH AND HEARING SCIENCES
SUR	SURGERY

Explanation of Course Descriptions

Discipline Abbreviations. Courses listed and described in this section have been approved by the several faculties of Rush University. Offerings for the 1992-93 academic year are listed in the *Timetable of Courses* published quarterly by the Office of the Registrar or the *Core Clerkship Handbook* and the *Elective Clerkship Handbook* published yearly by the Office of Clinical Curriculum of the medical college. The courses are listed alphabetically according to the discipline to which the course content is most closely related. These disciplines do not necessarily reflect a department in the University or in the Medical Center. A three-character abbreviation for the discipline precedes the course number for each course listed.

Course Numbers. A three-digit course number follows the course abbreviation. It indicates the level of offering for that course as shown below:

<u>Course Numbers</u>	<u>Level of Offering</u>
300-399	Undergraduate Third Level
400-449	Undergraduate Fourth Level
450-499	Dual Level--may be taken for undergraduate or graduate credit
500-599	Graduate Level
500-549	Master's Level (College of Nursing)
550-599	Doctor of Nursing Level (College of Nursing)
600	Post-Master's Level Residency
601-699	Doctoral Level

Course Content. A course title is followed by a brief description of course content and information pertaining to the course:

Course Prerequisites or Corequisites. Specific prerequisites are noted for some courses. Where no prerequisite is listed, it is assumed that students enrolling will have an adequate background on which to build. Students who have any questions about preparation should consult with the instructor of the course. If a corequisite is listed, that course must be taken either during the same term or prior to the course which has a corequisite.

Quarter in which course is given. FA(II), WI(nter), SP(ring), or SU(mmer) designates the quarter in which the course is offered each year.

Course credit. The number of quarter hours of credit for a course appears between parentheses. In many cases a series of three numbers is shown, e.g. (2-3-3). The first numbers refer to the hours per week of lecture or seminar; the second, to the number of hours in laboratory or clinical setting; the third, to quarter hours of credit. If any of these is variable, it is replaced with "v".

Clock hours (Rush Medical College). Clock hours appear between brackets. Since students in other colleges may cross-register for courses offered by Rush Medical College, the credit hour value of the course may also appear.

Clinical weeks (Rush Medical College). The number of weeks that students normally take each clinical course is indicated. These weeks also appear on the academic record. Clinical locations are sometimes identified. Students should contact the office of the Assistant Dean for Clinical Curriculum for availability of clinical sites and times.

Instructor. When known, the instructor's name is provided.

Independent Study Courses. Students may enroll in an independent study course in any discipline of the University under the direction of the appropriate faculty member with his/her written permission and the approval of the program director.

The course number 449 will be used for academic independent study for undergraduates and 599 for independent study for graduate students with the appropriate discipline prefix. Master's candidates in the College of Nursing use NUR 549.

ALTERNATIVE MEDICAL CURRICULUM

All alternative curriculum courses reflect the content of the regular medical curriculum for the first and second years. The format involves student-directed learning and group discussions. Only alternative curriculum students may take these courses.

ALT 451 Cellular/Molecular Biology. An integrated course with emphasis on the basic concepts and principles of biochemistry, immunology, and microbiology interwoven with a study of their clinical applications. FA (v) Waickus/Harrison, Seigel/Landay, Schechter.

ALT 452 Anatomical Sciences. The structure and function of the human body are examined from the perspective of the anatomical sciences, interwoven with a study of the clinical applications of gross anatomy, microscopic anatomy and embryology. WI (v) Williams.

ALT 454 Physiology. A comprehensive study of physiology emphasizing the processes and phenomena of organ systems interwoven with a study of their clinical application. SP (v) Michael.

ALT 455 Intro to Pharmacology. Pharmacology principles with a special emphasis on the autonomic nervous system interwoven with a study of their clinical application. SP (v) Nora, Prancan.

ALT 464, 465, 466 Behavioral Science I, II, III. An overview of the biological, psychological and sociocultural explanations of human behavior as they relate to health care. FA WI SP (v) Haut.

ALT 471 Epidemiology. A general survey of biostatistics and epidemiology. FA (v) Powell.

ALT 481, 482 Medical Ethics and the Law I, II. This course explores ethical issues in clinical medicine and research that arise and emphasizes areas of medical students' professional development. In addition, legal topics including negligence, intentional torts and civil procedure are presented. SP (v) Beranek.

ALT 511, 512, 513 Introduction to Patient I, II, III. Clinical concepts and skills. Students learn to elicit a medical history and how to do a general screening examination. Skills are practiced on other students, simulated patients and patients. FA WI SP (v) Nelson.

ALT 514, 515, 516 Introduction to Patient IV, V, VI. Continuation of ALT 513 FA WI SP (v) Fry, Hoyer, Huber, Schwer.

ALT 531 Neurosciences. The neurosciences, including neuroanatomy, neurophysiology, neuropathology, and neuropharmacology. FA (v) Smith, Carvey.

ALT 532 Psychopathology. In depth study of psychopathology. WI (v) Bloom.

ALT 540 General Pathology. The general concepts of pathology are studied, including cell injury, inflammation

and healing, immune responses, neoplasia, infectious processes, etc. FA (v) Loew.

ALT 541 Pathology, Pathophysiology, Pharmacology Block I. An integrated organ systems course with an emphasis on the concepts and principles of pathology, pathophysiology and pharmacology. WI (v) Huber, Nora, Loew.

ALT 542 Pathology, Pathophysiology, Pharmacology Block II. A continuation of ALT 541. SP (v) Huber, Nora, Loew.

ANATOMY

ANA 451 Histology. The microscopic anatomy of cells, tissues, and organ systems of the human body is studied through laboratories, lectures, and self-instructional material. Fine structural specializations relating to tissue function are emphasized along with the histological architecture that characterizes each. FA (3-4-5) [84 hours] Khodadad.

ANA 462 Introduction to Neurobiology. The development, morphology, and functional significance of the human nervous system are presented in lecture and by demonstrations. Clinical case studies and problem solving approaches are used. Fixed human brain preparations and series of neurological slides are used as visual aid materials. Prerequisite: courses in human biology or anatomy and physiology or comparative anatomy. Permission of instructor. WI (2-3-4) Kerns.

ANA 471 Human Anatomy I. The structure and function of the human body are examined topographically through laboratory dissection, lectures, and preceptorials. Laboratory dissection is conducted regionally, encompassing the thorax, abdomen, pelvis, perineum, head and neck, back, and extremities. Radiological anatomy, living anatomy, and clinical correlations are emphasized. The course also provides a survey of embryology and organ-system development. FA (5-6-7) [109 hours] Seale

ANA 472 Human Anatomy II. Continuation of ANA 471. Embryology is introduced where pertinent. WI (5-6-7) [90 hours] Seale.

ANA 501 Supplement to Histology. Discussion and supplementary readings for graduate students to complement subject matter covered in Histology (ANA 451), Human Anatomy (ANA 471, 472) and Medical Neurobiology. (v-v-v)

ANA 505 Embryology. This supplemental course for graduate students focuses on human embryonic and fetal development. Selected readings will be assigned in coordination with student interests and the embryology sections of ANA 471, 472. FA WI (v-v-v)

ANA 565 Gross Anatomy for Occupational Therapy. The structure and function of the human body are examined through laboratory dissection, lectures, and tutorials. Special emphasis is placed on those body regions that are pertinent to the requirements of the Occupational Therapy profession. Laboratory and lecture exams are

Course Descriptions

conducted on a regional basis and clinical correlations are emphasized. SU (v-v-5) Durica, Jacob.

ANA 581 Research Methods in Anatomy.

Introduction to basic methods for obtaining and preparing tissue for gross or microscopic study. Discussion, demonstrations, and directed laboratory exercises provide exposure to general histological techniques, staining, and selected methods. Consult program director. (2-4-4) Staff.

ANA 591 Preceptorials in Anatomy. Laboratory experience is provided in conjunction with related preceptorials on selected topics in the anatomical sciences. Prerequisites: ANA 451, 472. Offered if there is enough demand. (2-4-4) Staff.

ANA 592 Concepts in Morphology. Seminars and tutorials offered by faculty and guests on topics of special interest in the morphological sciences. Offered if there is enough demand. (v-v-v)

ANA 590 Special Topics in Anatomy. (v-v-v) Staff.

Topics in Ocular Anatomy and Biology

Tissue Repair Mechanisms

Anatomy of the Synovial Joint

Topics in Neurobiology.

ANA 591 Teaching Assistantship. Provides a directed experience in instruction and presentation techniques. (2-4-4)

ANA 595 Journal Club. (v-v-v)

ANA 599 Independent Study. Selected topics in anatomical science. (v)

ANA 600 Thesis supervision. Supervision while student is writing the master's thesis following all required course work. Repeated until thesis is accepted for publishing. Student pays enrollment fee. No credit.

ANA 601 Surgical Anatomy. A laboratory program of regional dissections and demonstrations. The applied, clinical, and surgical aspects of anatomical regions are emphasized. Prerequisite: ANA 471-2 or equivalent. Offered if there is enough demand. (0-v-v) [2-4 weeks] Durica.

ANA 602 Advanced Anatomy. A laboratory program of special dissections on selected regions of the body. This course is designed as an independent program for graduate students. Prerequisites: ANA 451, 472, or equivalent. Offered if there is enough demand. (0-v-v) Staff.

ANA 699 Research. Research devoted to the preparation of a dissertation in partial fulfillment of the requirements of the degree program. FA WI SP SU (0-v-v) Staff.

BIOCHEMISTRY

BCH 471 Medical Biochemistry I. Biochemistry of biologically important compounds and molecular biology. WI (5) [65] Bezkorovainy.

BCH 472 Medical Biochemistry II. Metabolism and nutrition. SP (6) [50] Bezkorovainy.

BCH 505 Advanced Biochemistry. Continuation of BCH 471, and 472 at the graduate level. Special emphasis is given to protein biochemistry, enzymology and molecular biology. SP (4) Homandberg.

BCH 531 Cell Biology I. Cell structure and molecular organization of organelles; cell signaling, adhesion and vesicular traffic. WI (3-0-3) C. Knudson.

BCH 532 Cell Biology II. Molecular interactions of cells within specialized tissues during development, normal and disease states. SP (3) C. Knudson.

BCH 551 Biochemical Calculations. Quantitative biochemistry, including problems in buffer chemistry, thermodynamics, biostatistics and enzyme kinetics. WI (2) Homandberg.

BCH 581 Biochemical Research Techniques. FA (4) Thonar.

BCH 582 Biochemical Methodology. Continuation of BCH 581. WI (4) Thonar.

BCH 583 Scientific Writing. Writing of a scientific abstract and a grant application on work performed in BCH 532. (1) Mollenhauer.

BCH 585 Extramural Research. An 8-10 week (usually spring quarter) experience at an industrial research laboratory in Europe or the U.S. The student will focus on major and minor research areas. Assigned reading, a final examination and a written report are required. SP (5)

BCH 595 Journal Club. Discussion of current journal articles. FA WI SP (2) Hayashi.

BCH 597 Seminar. FA WI SP (1) Aydelotte.

BCH 599 Independent Study. (v)

BCH 624 Connective Tissue Biochemistry. FA (3) Schmidt.

BCH 651 Science and the Law. Substantive law in the areas of products liability, professional malpractice, food and drug law, patents, forensics, evidence and other areas. SU (2) Bezkorovainy.

BCH 690 Minicourses. (1)

BCH 698 Introduction to Research. FA WI (1) C. Knudson.

BCH 699 Research in Biochemistry. (v)

BEHAVIORAL SCIENCES

BHV 451 Fundamentals of Behavior. During the first five weeks, a series of lectures provide the basic conceptual framework and terminology used to describe

and explain human behavior in three areas: biological, psychological, and sociocultural. Primary emphasis throughout is on the ways such types of influences affect the lives of patients. WI [22 hours] Cella.

BHV 452 Ethics and Law in Medicine. Introduction to the interface between legal and ethical issues in medical practice. Includes malpractice, civil procedure and documentation, advance directives, confidentiality, ethical theory and principles of ethics. Emphasis on cases and small group discussion. WI [20 hours] M.Brown, Burton.

BHV 453 Behavior in the Life Cycle. Introduction to a clinically based study of the individual life cycle. Emphasis is on the provision of a normative account of development from physical, psychosocial, and sociological perspectives. During the second five weeks of the quarter students choose one special topic seminar (BHV 473). SP [28 hours] Cella.

BHV 461 The Family, Health, and Literature. Principles and dynamics of family health are presented. Selected works of fiction are used to illustrate concepts. (3-0-3)

BHV 473 Behavioral Science Minicourses. A matrix of special topic seminars which allows a concentrated introduction to a significant area of behavioral study. The following descriptions, presented in recent years, are typical of those presented each year. (1) [10 hours]

Death and Dying. This course will examine significant psychosocial issues in the care of the dying and their families. Issues will include: caregivers' personal death awareness and its effects on their caregiving; question of "stages;" effective counseling with dying persons and their families; cross-cultural concerns; and suicide. Short stories, video, poems, and other literary forms will be assigned.

The Human Side of HIV/AIDS. This course is designed to provide a personal understanding of those most affected by this illness: persons living with HIV and AIDS, their families, loved ones, and the many different kinds of caregivers who help them. Our object is to offer an expanded awareness of the caregiver's role in treating people from different backgrounds, cultures and sexual preferences. This will be accomplished incorporating human interaction with readings, visual materials, field trips, and group discussion.

Narrative and Medicine. A characteristic of the human species is that we think in metaphors and learn through stories. In the midst of crises persons construct stories that give meaning to events. This course is designed to focus on understanding how persons create meaning out of the experiences of disease and suffering. Through participation in group improvisational exercises, students will discover how to be in tune with stories and their tellers. The ethnographic, participant-observer model, will call forth each student's peripheral vision of the values and meaning that lie at the margins of perception. Together we will create a brief performance piece based on our improvisational play. If you want more than lectures and

discussion, join us in a creative pursuit of knowledge that too often lies just outside of awareness.

Obesity, Eating Disorders and Weight Management. This course will cover the epidemiology, genetics, physiological, social, and psychological aspects of obesity. Students will learn the current dietary, behavioral, and exercise approaches to weight reduction as well as the new natural eating alternative. Health risks associated with obesity, excessive thinness, and restrictive dieting are presented. The course has now been expanded to include material on eating disorders, anorexia and bulimia, and the psychodevelopmental model of understanding the psychopathology of an eating disorder. Current approaches to treating eating disorders are discussed including the Adolescent and Young Adult Eating Disorders Program at RPSLMC. Grades will be based on class participation and brief take-home quiz.

Pain. Pain is a symptom that is commonly presented and its alleviation is often a primary goal of treatment. At the same time, pain is often not obviously related to physical disease processes and may be a complication of treatment. This course will discuss concepts of pain, factors affecting its report by patients, and its role in various disorders. Grades will be based on class participation and a brief paper.

Sexuality. This course is designed to expand awareness, comfort and knowledge in the area of human sexuality in order to enhance physician-patient interactions. This will be accomplished by exploring values associated with sexuality, the meaning of sexuality in various contexts/cultures and influences on expression of sexuality in our society. In addition, the course will focus on skills for discussing sexuality with patients and taking a sexual history in clinical practice. Other topics include menopause and issues related to chronic illness and disability. Format will be interactive with use of videotapes and problem solving with case histories to increase knowledge, skill and comfort regarding sexuality. Grades will be based upon class participation and brief paper.

Sleep Disorders Across the Life Cycle. This course will explore the common sleep problems of adolescents, young adults and the elderly using case study examples of nightmarers and sleep terror patients, narcoleptics, phase delayed sleepers, insomniacs due to anxiety, and patients with day time sleepiness due to sleep apnea or depression. Special emphasis will be placed on students' sleep. Evaluation will consist of a multiple choice examination at the end of the course.

BHV 520 Growth and Development in Children and Adolescents.— An overview is presented of models and theories of development during childhood and adolescence. Biophysical, cognitive, emotional, and moral developmental theories are examined. Current research in the developmental and nursing literature is criticized for relevance to health promotion of children and adolescents. (3-0-3)

BHV 521 Adult Development. A critical examination of classic and contemporary theories of adult development is presented. (3-0-3)

BHV 522 Family Development Throughout the Life Span. The development and evolution of families throughout the life cycle is presented. Research methods used to study family process are discussed. (3-0-3)

BHV 523 Psychosocial Topics in Women's Health. An interdisciplinary inquiry into the theories, research, and methodologies concerning selected experiences of women as both primary and secondary consumers of health care. Prerequisite: NUR 521 or equivalent, or Consent of Instructor. (3-0-3)

BHV 524 Cultural Diversity in Health Care. This course is designed for health care professionals who are interested in promoting their ability to work with culturally diverse groups. It focuses on the concepts, theories and research related to providing culturally sensitive health care. Students will critically analyse personal values and beliefs and develop skills in cross-cultural communications. (3-0-3)

BHV 525 Individuals and Families in Crisis. The purpose of this course is to expand the student's knowledge of theoretical models of crisis intervention and to apply these models to people in conflict. Students will analyze clinical cases of clients in crisis and devise appropriate interventions using relevant crisis models and research finding. (3-0-3)

BHV 526 Dynamics of Small Groups. Focus is on current theory and research on small group dynamics as a basis for interventions in groups with clinical, educational, or managerial tasks. (3-0-3)

BHV 527 Creative Methods to Enhance Clinical Practice. Participants will acquire a variety of new skills to enhance psychosocial assessments, increase the effectiveness of patient teaching, and enrich individual and group psychotherapy. (3-0-3)

BHV 528 Major Psychopathological Disorders: Theory, Treatment and Research. Major forms of mental illness and the management of behaviors related to mental illness is studied. (3-0-3)

BHV 529 Coping, Stress, and Adaptation to Illness and Disability. Major theories and concepts that explain how people learn to cope with stress, illness, and/or disability are examined. (3-0-3)

BHV 533 Foundation of Mental Health in Early Childhood. Focus is on assessment of normal and high risk parent infant relationships and interventions with families whose infants are at risk for attachment disorders. (2-0-2)

BHV 541 Inpatient Psychiatry and the Search for Theory Based Practice. Focus is on articulating the conceptual underpinning of psychiatric nursing interventions. Emphasized are the logical connections between an intervention, the theoretical basis, the technology of the intervention and its intended results. (3-0-3)

BHV 543 Observation and Communication. Introduction to the interview technique and process--the interview as a tool that facilitates the doctor-patient relationship and produces reliable and valid medical information. Interview theory, determinants of patient behavior and practice of interview skills are included. Seminars use videotapes. Prerequisite: BHV 451. WI [28 hours] Leavitt.

BHV 553 The Older Adult. Changing demographics of an aging population and major issues confronting aging persons are discussed. The impact of an aging society on social and health policy is explored. Prerequisite: BHV 521 or consent of instructor. (3-0-3)

CLINICAL CONCEPTS AND SKILLS

CCS 501, 502, 503 Clinical Concepts and Skills I, II, III. A comprehensive introduction to clinical medicine utilizing the resources of the Medical Center and the Rush network hospitals. Studies are primarily tutorial, but texts, audiovisual, and mechanical aids are available for self-study. Initially, students work with instructors and peers, learning to elicit a history and do a general screening examination. This is followed by extensive experience working with patients under the supervision of practicing physicians, with emphasis on eliciting historical information and gaining experience in physical examination techniques. Demonstration of pathological abnormalities and clinical pathological correlations are emphasized. Taught over three terms. [136 hours] McLaughlin, Douglas.

CELL BIOLOGY

CEL 612 Electron Microscopy Laboratory. Practical techniques of electron microscopy are addressed. Students dissect, fix and imbed tissue and learn the use of the electron microscope. The goal of the course is the preparation of electron micrographs of research quality. Extensive time for practical use of the equipment will be available. [2 weeks] Suvaizdis.

CLINICAL LABORATORY SCIENCES

CLS 301 Laboratory Techniques. Study and practice of laboratory skills used in the various clinical laboratory areas. Topics covered include instrumentation, use and maintenance; manual skills such as pipeting, titrating, preparation of reagents and buffers; use of balances and pH meters; and laboratory calculations. Departmental permission required. (3-6-5)

CLS 302 Clinical Chemistry I. Basic biochemistry and physiology, with emphasis on those tissues, organs and systems amenable to diagnostic evaluation utilizing clinical chemistry methods. Departmental permission required. (3-0-3)

CLS 303 Clinical Chemistry II. Use of analytical methods for proteins, enzymes, carbohydrates, lipids, electrolytes and blood gases in the diagnostic evaluation of cardiac, hepatic, renal, pulmonary, pancreatic and muscle status. Prerequisite: CLS 302. (3-0-3)

CLS 304 Clinical Chemistry III. Use of analytical methods of hormones, drugs, tumor markers and other analytes in the diagnostic evaluation of endocrine, hematologic and cancer status; in therapeutic drug monitoring; and in toxicologic emergencies. Prerequisite: CLS 303. (3-0-3)

CLS 311 Hematology I. Study of normal hematopoiesis including development, metabolism, kinetics, and function of red cells, white cells, and platelets and an introduction to the various associated hematologic disorders. Fundamentals of hemostasis, including coagulation pathways and laboratory procedures which evaluate these mechanisms are covered. Includes laboratory experiences dealing with basic routine tests performed in a clinical hematology laboratory, such as simple automated cell counting, blood smear morphology, and reticulocyte counts. Departmental permission required. (3-9-6)

CLS 312 Body Fluid Analysis. Analysis of various body fluids with emphasis on the theory and practice of clinical procedures. Components topics will include the analyses of urine, gastric juice, cerebral spinal fluid, feces, semen, transudates, and exudates. Departmental permission required. (2-6-4)

CLS 411 Hematology II. Review of erythrocyte, leukocyte, and coagulation disorders through the use of case studies. Critical thinking is used to analyse patient histories, clinical symptoms, and significant laboratory findings. Prerequisite: CLS 311. (2-0-2)

CLS 321 Microbiology. This course focuses on the diagnostic procedures employed in the clinical bacteriology laboratory, such as specimen collection and the isolation and identification of medically important bacteria. Mechanisms of antimicrobial activity and antibiotic susceptibility testing are discussed. Laboratory activities familiarize the student with the colony morphology of clinically important bacteria and consist of learning procedures used in the identification of bacteria isolates, including the gram stain and various biochemical assays. These activities are then applied to the identification of unknown bacterial isolates found in patient specimens. Departmental permission required. (3-6-5)

CLS 322 Parasitology, Mycology and Virology. This course provides clinical background in mycology, parasitology, and virology. Emphasis is on the disease involved and on diagnostic procedures used in the laboratory. The laboratory portion consists of identification, specimen collection and processing of medically important viruses, fungi and parasites. Prerequisite: CLS 321. (2-6-4)

CLS 331 Clinical Immunology. An introduction to the basic concepts and terminology of immunity including development, structure and function of the lymphoid systems; the basis of antigenicity; antibody structure; methods of detection and measurement; mechanism of cellular immunity; white cell function; hypersensitivity reactions; the complement system; and mechanisms of immune suppression and tolerance. In the laboratory portion of the class, students become familiar with the purpose, principles, performance and interpretation of

various serological tests used routinely in the clinical laboratory for the diagnosis of syphilis and other infectious disease, as well as, autoimmune diseases such as rheumatoid arthritis and thyroiditis. Departmental permission required. (3-6-5)

CLS 332 Clinical Immunohematology. Blood group antigens and antibodies from the discoveries of Landsteiner in 1900 to the present day are studied. Blood banking procedures involved in drawing, testing, storing, and transfusing whole blood and its components are discussed. The laboratory section will deal with the basic blood bank procedures including ABO grouping. RH typing, compatibility testing, and special antibody studies. Departmental permission required. (2-6-4)

CLS 431 Molecular Technique. The molecular biology course consists of an introduction to the principles, methodologies and applications of molecular biological procedures used in the clinical laboratories. Emphasis is placed on the molecular biological procedures used in the identification of infectious agents that cause human disease. Departmental permission required. (1-0-1)

DERMATOLOGY

DRM 616 Dermatology. Dermatological problems are studied under the direct supervision of the departmental staff; diseases are considered from the standpoint of etiology, pathogenesis, diagnosis, course, and treatment. Skin biopsy applications and techniques as well as histopathologic interpretation are emphasized. Skin therapeutics are taught, stressing biochemical and physiological considerations. Prerequisite: fourth year status. FA WI SP SU [4 weeks] Tharp.

FAMILY MEDICINE

FAM 601 Core Clerkship in Family Medicine. An intense ambulatory experience in family medicine. Students see patients initially and formulate their assessments and plans under supervision of senior residents and attendings. Participation in comprehensive, longitudinal care is stressed. The common problems and responsibilities of a primary care physician are observed and taught. A lecture series and syllabus supplement the clinical experience. Two skills laboratories cover casting, suturing, and proctosigmoidoscopy. Diagnosis and treatment of alcoholism are also emphasized. Prerequisite: MED 503. FA WI SP SU [4 weeks] Vanderberg-Dent.

FAM 610 Family Medicine Subinternship. An intensive primary care experience at either Christ or MacNeal Hospitals. The subintern will function in a capacity similar to an intern, with supervision by a senior resident and faculty physician. Prerequisite: FAM 601, MED 601, PED 601, SUR 601. FA WI SP SU [4 weeks] Schwer (Christ), Tenzer (MacNeal).

FAM 625 Alcoholism/Chemical Dependency Unit. Students develop skills in intervening and managing alcoholic and other chemically dependent patients. A longitudinal interdisciplinary experience is stressed, emphasizing detoxification, rehabilitation, and outpatient treatment. Offered at Illinois Masonic Medical Center, and

Course Descriptions

Hinsdale and MacNeal Hospitals. Course director approval at least four weeks in advance. Prerequisite: FAM 601. FA WI SP SU [2-4 weeks] Hinsdale: Ready, Illinois Masonic: Vergara, MacNeal: Bonbrest.

FAM 641 Urban Primary Care. A preceptorship with a family physician in an urban solo practice, emphasizing preventive health care and the impact of environmental factors upon health care delivery. Course director approval at least four weeks in advance. Prerequisite: FAM 601, MED 601, OBG 601, PED 601. FA WI SP SU [4 weeks] Rothschild.

FAM 643 ANCHOR HMO Network Primary Care Preceptorship. A preceptorship with a family physician in practice in a prepaid group medical practice (health maintenance organization). Emphasis will be upon preventive, comprehensive health care and upon understanding unique aspects of voluntary prepaid health care. Prerequisite: FAM 601, MED 601, PED 601. FA WI SP SU [4 weeks] McHugh.

FAM 644 Preceptorship in Holistic Health Care . The student will work with a health care team comprised of a family physician, nurse, and pastoral counselor. There will be participation in the health care of patients, encompassing medical, psychological, and spiritual issues. There is a particular emphasis upon wellness promotion and comprehensive health planning. Course director approval at least four weeks in advance. Prerequisite: FAM 601, MED 601, OBG 601, PED 601. FA WI SP SU [4 weeks] Humowiecki.

FAM 645 Private PracticePreceptorship. A preceptorship with an experienced family physician, both at his office in southwest Chicago and at Christ Hospital. The student will work in all areas of a busy physician's practice. Prerequisite: FAM 601, MED 601, PED 601. FA WI SP SU [4 weeks] Waickus.

FAM 651 Rural Primary Care - Streator. A preceptorship with an experienced family physician in Streator, Illinois, a town of 15,000 persons 90 miles southwest of Chicago. Prerequisites: FAM 601, MED 601, OBG 601, PED 601. FA WI SP SU [4 weeks] Gottemoller.

FAM 653 Rural Primary Care - Sycamore. A preceptorship with a family physician group in a small community near DeKalb, Illinois. A full range of family medicine, including obstetrics, is practiced by this group. Prerequisites: FAM 601, MED 601, OBG 601, PED 601. FA WI SP SU [4 weeks] Hirsch.

HEALTH CARE EDUCATION

HCE 454 Development of Instructional Media. An overview of communication theory and its relationship to the communication process is used by students to design an instructional media program for a specific target audience. (2-0-2)

HCE 581 Introduction to Research. The student develops skill in critically analyzing research studies, formulating research problems, designing research

methods, using descriptive and inferential statistics to interpret data, analyzing data using parametric and nonparametric statistical models, and developing beginning competencies in the use of computers in research. (3-3-4)

RELIGION, HEALTH AND HUMAN VALUES

HHV 453 Illness and Faith. An examination of patients' understanding of body, time, shame, community, the self, sacrifice and suffering, religious resources, and the relationship between God and illness in light of personal faith. Employs seminar method and some clinical materials. Limited enrollment requiring instructor permission. (2-0-2)

HHV 454 Health, Illness and Human Values. Patient responses to illness vary according to values-related factors such as ethnicity, gender, family structure, and belief systems. In addition to exploring the interrelationship between these factors and the healthcare system (structures and providers), this course looks at the philosophical category of epistemology and the idea of the social construction of reality as a way of conceptualizing differing illness beliefs/behaviors. (2-0-2)

HHV 464 Death and Dying. An examination of the issues dying persons face and the way they face them. Narratives of dying persons, their families and those who care for them are examined. Theories about the experience of dying are compared. Cross-cultural perspectives are studied. Issues from family systems theory are studied. Personal death awareness and selected ethical issues are included. (2-0-2)

HHV 465 Death and Dying in Literature. Drawing on classical and contemporary literature, this course will consider various literary portrayals of death, dying and bereavement; the meanings of death in the life of the family and the society and themes of pain, suffering, courage, resolutions of conflict and life in the face of death. (2-0-2)

HHV 501 Introduction to Healthcare Ethics. This interdisciplinary course considers representative foundational theories of ethics, religious perspectives, and methodology, as well as selected issues such as paternalism vs. enhancement of patients' autonomy; justice; beneficence vs. nonmaleficence; legal issues, public policy. (3-1-3)

HHV 502 Major Issues in Healthcare Ethics. The focus in the course is on "End of Life--Ending Life" with topics such as advance directives, DNR's, withholding and withdrawing treatment, treatment decisions and ethics, PVS, brain death, euthanasia, allocation, etc. Both ethical and legal perspectives are considered. Prerequisite HHV 501. (3-1-3)

HHV 503 Seminar in Healthcare Ethics. Students present a major seminar paper on an approved topic in clinical healthcare ethics, and lead discussion around the issue. Prerequisite HHV 502. (3-1-3)

HHV 504 Psychology and Healthcare Ethics. The relationship between psychological issues such as

personality, family systems, individual and family life cycle, death and dying, mediation/negotiation, and ethical dilemmas is explored. Prerequisite HHV 501. (3-0-3)

HHV 505 Ethics in Research. A seminar course with guest speakers covering controversial issues regarding scientific misconduct, authorship disputes, collaboration in research projects, student/fellow-advisor relationships, bias in data interpretation, whistleblowing, the grants game, biopolitics, and the status of women and minorities in biomedical research. In short-a survival guide for the beginning research professional. (1-0-1)

HHV 507 Operations and Healthcare Ethics. A seminar offering readings, practicum, and reflection integrating day-to-day operational issues with ethics theory and method. (2-0-2)

HHV 510 Seminar in Health and Human Values I. Interdisciplinary seminar integrating the written, visual and performing arts with philosophical and clinical issues and approaches to healthcare. Includes Campbell Lectures each quarter taken. (variable)

HHV 524 Healing Women and the Healthcare System. An examination of the history of women in the healthcare system and of the issues related to the assessment of women as both patients and as caregivers. (v-v-v)

HHV 525 Narrative and Medicine. A characteristic of the human species is that we think in metaphors and learn through stories. In the midst of crises, persons construct stories that give meaning to events. This course is designed to focus on understanding how persons create meaning out of the experiences of disease and suffering. Through participation in improvisational exercises, students discover how to be in tune with stories and their tellers. (v-v-v)

HHV 532 Introduction to Holistic Spiritual Assessment. In the context of a review of holistic approaches to patient assessment, this course provides an introduction to spiritual assessment. Several significant models for spiritual assessment are presented and evaluated. The models are applied with case studies and/or patient interviews. 3-0-3)

HHV 533 Theology of Pastoral Care. A seminar in which students study various theological approaches to pastoral care and formulate their own theology of the discipline. (2-0-2) Staff.

HHV 534 Suffering. Healthcare practitioners inevitably engage the issue of human suffering. This course examines the nature of suffering, the suffering of the healthier, approaches to living with suffering.

HHV 535 Spirit/Mind/Body. This course examines the research of faith and health outcomes, psychoneuro-immunology, mind/body concepts, complementary therapies, and an introduction to the practice of proven techniques for enhancing health through spirit/mind/body integration. (3-0-3)

HHV 537 Crisis. A consideration of theories of crisis and crisis intervention, with particular attention to those related to healthcare delivery. Critical Incident DeBriefing will be considered. Reflection of cases provides the context for application of material from family systems, clinical psychology, sociology and theology. (3-0-3) Burton, O'Reilly.

HHV 538 Death and Dying in Cross-Cultural Perspective. Examines central/major issues dying persons face and way they face them, exploring narratives of dying persons, their families and those who care for them. Compares theories about the experience of dying, caregiver's personal death awareness and selected ethical issues with an awareness of cross cultural differences. (2)

HHV 541, 542, 543 Seminar in Theological Reflection I, II, III. Using a "story theology" model, students bring narratives from their own experience as well as from the experience of patients/clients to discern major theological themes. (1 credit each) Staff.

HHV 544 Ethics Consultation. Students are paired with a working ethics consultant for rounds and general ethics coverage for one part of the course. Group reflection on cases and consultation method constitutes the other part of the course. (v-v-v)

HHV 551, 552, 553 Clinical practicum I, II, III. Supervised clinical experience in a setting appropriate to learning goals. Settings may include in-patient chaplaincy, trauma, crisis or ethics. (v-v-v) Staff.

HHV 576 Values and Power: Ethics for Healthcare Managers. Considers questions such as what is ethics? What are the basic ethical questions healthcare managers will encounter? What are the ethical responsibilities of the healthcare manager? What are the manager's responsibilities for providing an environment in which others can exercise their ethical responsibilities? Same as HSM 576. (1-0-1) Burck, Staff.

HHV 577 Issues in Bioethics for Healthcare Managers. Introduction to major issues in clinical ethics facing healthcare institutions, including access, end-of-life, role of technology, etc. Course uses a case-based approach in conjunction with basic ethical theory and methodology. (v-v-v)

HHV 581 Reading and Research in Healthcare Ethics. Independent guided study in selected current topics in healthcare ethics. Prerequisite HHV 501. (v-v-v) Staff.

HHV 586 Reading and Research in Religion and Health. Individual projects under the supervision of a faculty member.

HHV 598 Thesis/Project in Health and Human Values. (3-0-3) Staff.

HHV 599 Independent Study. (v)

Course Descriptions

HHV 601 Perspectives on Healthcare Ethics. This interdisciplinary course is divided into three parts: an intensive introduction to ethical theories and methodologies; a review of law, ethics and medicine; and a case-oriented focus on specific issues in healthcare ethics. In addition, the impact of ethnicity, religion, class, and gender on moral decision-making will be considered. Prerequisite: admission to doctoral program. (4-0-4) Burck, Burton, Brown, Bosek.

HHV 611 Clinical Medical Ethics. As an expression of profound commitments to human well-being, the powers, privileges, and responsibilities of medical practice have always engaged ethical interest and inquiry. Today, more than ever, physicians are faced with situations that challenge standards of practice and require new moral analysis. Tomorrow's physicians will need to be able to carry out basic moral assessments of their work and to know how to use ethics consultations. Medical students presently encounter moral issues in medical practice through minicourses, explicit attention in some clinical rotations, and struggles associated with clinical decisions. This clerkship will enable students to explore issues in clinical ethics more deeply as they prepare for residencies and practice. This clerkship offers an intensive hands-on experience under the supervision of seasoned clinical ethicists, through which students can explore their own moral context, more reasoning, and ability to conduct moral analysis in the context of clinical medicine. Students will have the opportunity to direct some of the clerkship themselves toward ethical issues that they bring to the clerkship. In addition, the course director will seek to provide students some contact with physicians who practice in the area that the students have chosen for their residencies. Further, they will be able to make field trips to hospitals associated with the Rush Health Care System and to work with the ethicists at those sites: Copley Memorial Hospital, Illinois Masonic, Rush North Shore, and others as they become available. Third-year medical students who have an interest in taking this elective in their fourth year are encouraged to keep appropriate notes on clinical encounters that have been ethically significant for them. They should keep in mind not only situations about which they have ethical questions, but also those that seem to exemplify the quality care that they are preparing to provide. FA WI SP SU [4] Burck.[4 weeks] Burck.

HEALTH SYSTEMS MANAGEMENT

HSM 501 Professional Skills Development. This course is organized into a series of seminars required in the fall quarter of the first and the second year. The focus will be on business writing and presentations skills in the first year. The second year the course will focus on acquiring skills necessary for completing a successful job search and beginning a career. (1)(1)

HSM 502 Health Care Organization. This course is intended to provide students with a learning structure that enables them to become well versed in the factors, forces, and dynamics of the macro environment in which health care services are provided. The interrelationships among various trends and forces likely to shape the roles and responsibilities of health care institutions in the future will be stressed. The learning methods used emphasize

lecture, student participation in discussion, written reports, and participation in health care facility site visits. It is expected that this course will serve as an introduction to issues and concepts in HSM courses in Organizational Behavior, Health Economics, Health Care Finance, Health Care Planning and Marketing. This is highly coordinated with HSM 506 Medical Sociology. (3-0-3)

HSM 506 Medical Sociology. This course examines the sociological, psychological, and behavioral dynamics of patients, practitioners, and groups within health care delivery systems. The students will be introduced to the concepts of health and illness, public health and epidemiology. The trends that are likely to shape the roles and responsibilities of health care providers and administrators will be stressed. This theoretical framework will help students focus their encounters with patients and their physicians during the latter half of the course. This course is highly coordinated with HSM 502 Health Care Organization. (3-0-3)

HSM 507 Epidemiology. An understanding of the principles and methodologies of epidemiology, research design, and program evaluation emphasizing application to the planning and management of health care services. (4-0-4)

HSM 510 Healthcare in America: An Overview for Health Professions Students. This course is designed for students who are just entering a health profession. Ten topics that address contemporary issues in the American health care system are presented by Medical Center leaders. Examples of topics include the organization and delivery of health care in the nation, the economics and financing of health care, preparation of the nation's health workforce, wellness and illness, ethics, research, politics and policy-making, and health care reform. Following the presentations, the class breaks into interdisciplinary seminar groups lead by faculty to explore further the featured topics. (2-0-1) Trufant, Bonk.

HSM 515 Human Resources Management I. An understanding of the human relations skills required of the health systems manager in an environment filled with both federal and state legal constraints. Skills acquired include motivating employees, appraising performance, dealing with disciplinary problems, and employee counseling. (4-0-4)

HSM 516 Human Resources Management II. Examination of the labor-management relationship including the employment and labor laws impacting on both the union and nonunion work force. Provides an understanding of the unions prevalent in health care, strategies in confronting an organizing campaign, the processes of collective bargaining, and effective contract administration. SP SU (3-0-3)

HSM 522 Multi-Institutional Arrangements. An analysis of goals and organizational structures of multihospital systems and an understanding of causes for this trend, barriers to development, advantages/disadvantages and future trends. (3-0-3)

HSM 531 Finance I. Understanding the concepts and principles of accounting and finances and their application in health systems management. (4-0-4)

HSM 532 Finance II. Provides an understanding and knowledge of health care services payment policies including sources of payment, (e.g., Medicare, Medicaid, Blue Cross) emerging payment arrangements, e.g., DRGs, PPOs, HMOs and the application of budgeting principles to health care institutions. (3-0-3)

HSM 533 Health Economics. Application of economic tools and theories to the delivery of health care services. (4-0-4)

HSM 534 Applied Economics I: Economics of Technology. This course will present the basic theory of technology evaluation as applied to the health care system. It will present and summarize the techniques developed in prior courses and analyze applications to medical and managerial technologies in health care. (3-0-3)

HSM 535 Applied Economics II: Regulation and Public Policy. The current theories and empirical tests of the effects of regulation in the health care system will be presented and analyzed. Applications will focus on the influence of regulation on health services management with special emphasis on future regulatory actions and their impacts. (3-0-3)

HSM 536 Corporate Finance. Provides the financial tools and ability to understand the principle issues of corporate finance and financial management. This course shifts the student's focus from a micro to macro or corporate view of financial management. The overall objectives of the course are to understand the roles, functions and responsibilities of financial officers in managing a health care institution; be able to identify and analyze corporate finance problems and issues in the management of health care institutions and be able to evaluate the financial performance of institutions in asset and debt management. (3-0-3)

HSM 539 Finance Seminar. The application of knowledge and skills acquired in the Health Systems Management finance course and the integration of decision-making processes. Students make strategic planning, staffing, capital financing, pricing, and cash management decisions for a hospital under changing environmental trends and payment policies. These decisions will affect the hospital's financial position relative to other hospitals in the community through a computer simulation model. (3-0-3) Greenstein, Jellinek.

HSM 543 Health Law. Provides a systematic and comprehensive knowledge of law as it impacts health care delivery systems. Students acquire an understanding of contract law, tort law, corporate law, labor law, and civil procedure. (4-0-4)

HSM 545 Organizational Analysis. An introduction to the study of organizations, including structures, processes, and human behavior. This course focuses on theories and concepts in such areas as organizational research, motivation, stress, leadership, group dynamics, roles, decision making, technology, communication, ethics, and change. (4-0-4)

HSM 545 Advanced Organizational Analysis. The student will examine several comprehensive theories of organization and environment and extract from them practical management tools that can be applied to any management setting/ Topics covered are: Structure and Technology; Culture and Innovation; Environment and Strategic Choice. (4-0-4)

HSM 551 Information Systems I. Basic information systems concepts are presented such as: systems theory, systems analysis, fundamental information systems concepts (in the areas of hardware, software, and personnel), fundamentals of information systems management and the systems life cycle. (4-0-4)

HSM 552 Information Systems II. This course will concentrate on intermediate to advanced concepts of information systems. Specific topics may include: information systems resource management, cost/benefit analysis, overview of information system topology, technology assessment and strategic planning. (4-0-4)

HSM 553 Advanced Information Systems. Advanced topics and concepts of information systems concentrating on specific application within health care including administrative, financial, clinical, and departmental. (3-0-3)

HSM 555 Health Care and the Elderly. This course gives students an understanding of the demographics of the elderly population, the aging process and the impact of legislation on development of a long-term care system will be the basis for the building of a model care system for the elderly. Social policy issues in the United States and other western countries will be addressed by health care providers as well as by the elderly and their families. (3-0-3) Counte, Glandon, Heelan.

HSM 556 Group Practice Management. This course focuses on the analysis of problems in a health care provider setting and the application of systems techniques to resolve these problems. The course will allow students to gain familiarity through theory and practicum, with a small business environment presented as a physician group practice client site. (3-0-3)

HSM 557 Quality in Health Care. Provides students with a thorough knowledge of the quality evaluation process and the ways in which it is implemented in today's health care industry. (1-0-1)

HSM 558 Ambulatory Care Management. An overview of ambulatory health systems, marketing and management techniques, and professional and administrative issues. (3-0-3)

HSM 560 Health Care Policy: Formulation, Implementation and Evaluation. The topics covered will be health policy as part of the environment for providers, processes by which providers can influence policy formation, some methods of policy analyses, and pertinent recent history and relevant trends. (3-0-3)

HSM 561 Strategic Planning and Marketing. This course will provide an understanding and working knowledge of strategic planning and marketing theory,

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terminology, techniques and analytical approaches for planning and marketing health services. (4-0-4)

HSM 567 Managed Care. An examination of managed care organizations in theory and practice. The variations in model types and external forces affecting their development and operational strategy will be explored. (3-0-3) Senioris

HSM 568 Comparative International Health Care. A critical review of the health care systems of several countries, discussed in the context of their components and the political, social, and economic milieu in which they function. The goal will be to learn from the strengths and weaknesses of these systems and to identify components that are cost-effective for the purpose of developing creative ideas that may be transportable to other delivery systems. (3-0-3)

HSM 571 Operations Management. Fundamental operations research and industrial engineering topics as applied to health care are presented. Topics might include: project management, productivity, queueing theory, and inventory theory. (4-0-4)

HSM 572 Advanced Operations Research. The focus of this course is on the solution of management and operational problems presenting themselves in the health care delivery setting through the use of advanced quantitative techniques. Emphasis will be placed on the theory behind some of the advanced techniques developed in HSM 571. (3-0-3)

HSM 576 Values and Power: Ethics for Health Care Managers. Same as HHV 576. (1-0-1)

HSM 582 Intermediate Statistics. This course reviews a blend of pre-, true and quasi-experimental designs as well as intermediate level statistical tests which a health systems manager will likely use operationally or in empirical research. The statistical tests include ANOVA, simple and multiple regression, and such nonparametric techniques as the Kolmogorov-Smirnov, Wilcoxon, and Mann-Whitney. Knowledge of probability theory and univariate statistics as well as hands-on DOS and SPSS-PC+ computer skills, is presumed. Given a data set and articles for review, participants will design and implement a research plan, interpreting and subsequently writing their results in a journal article format. (4-0-4)

HSM 583 Advanced Statistics. Emphasis on these advanced topics and concepts in statistics will be placed upon research methods and forecasting. (3-0-3)

HSM 595 Graduate Seminar. An analysis of selected topics and issues in health care today with the broad participation of faculty and eminent leaders in the field. (1-0-1)

HSM 590 Topics in Health Systems Management. This course presents three one-credit mini courses on the most current issues in health care. In the past, topics have included utilization management, PHO development, home health care, health care and the elderly and international health care. (3)

HSM 597 Masters Project. This two quarter course provides the second-year HSM student with the opportunity to apply problem-solving techniques and evaluation methods. The student conducts an applied management study at a Chicago-area health care organization. Major emphasis is placed on developing students' report writing and oral presentation skills. (8-0-8)

IMMUNOLOGY

IMM 501 Immunology. An introduction to immunology with emphasis on basic concepts and principles, interwoven with a study of their clinical applications. SP (5) [53 hours] Lint.

IMM 502 Introduction to Experimental Immunology. A graduate introductory course covering basic concepts in experimental immunology including basic laboratory techniques. FA (3-0-43) Lint.

IMM 521 Basic and Clinical Immunology: Lecture Segment. A comprehensive introduction to immunology, with emphasis on basic concepts and principles, and clinical applications. SP (5-0-5) Lint.

IMM 531 Advanced Immunology. A comprehensive course in molecular and cellular immunology including lymphocyte ontogeny, cellular interactions, and effector cell functions, immunogenetics and tumor registry. Alt. WI (4-0-4) Finnegan.

IMM 571 Laboratory Tutorial. Individual program designed to acquaint the student with research protocols and interests within the department. (v-v-v) Staff.

IMM 585 Research Seminar. Seminar on contemporary topics in immunology and virology. FA WI SP (1-0-1) Lint.

IMM 590 Special Topics. Detailed study of contemporary topics in immunology. These are presented in a five week block and include topics such as Inflammation, Host Defense, Membrane Structure, and Antigen Presentation. (v-v-v) Staff.

IMM 598 Pre-Dissertation Research. Research credits prior to acceptance to doctoral candidacy. (v-v-v) Advisor.

IMM 599 Independent Study. Specialized course work designed around the needs of an individual student. (v-v-v) Staff.

IMM 699 Dissertation Research. Research credits after admission to candidacy. (v-v-v) Advisor.

INTERNAL MEDICINE

MED 501, 502, 503 Clinical Pathophysiology I, II, III. Serving as a bridge between the basic sciences and clinical medicine the course helps to make the student conversant with the limits of biochemical and physiologic responses under a variety of stresses and disease states. Emphasis is in three basic areas: abnormal, general cellular biology; homeostasis; and organ system pathophysiology. The course closely coordinates with topics in the pathology

course and also with didactic material to be presented during the third-year clinical program. FA WI SP [171 hours] Szidon.

MED 601 Core Clerkship in Internal Medicine. The medicine clerkship is designed to introduce students to the study and skills of clinical medicine. The case study approach is used in evaluation and management of patients and their problems so that students can develop their skills in history taking and differential diagnosis, as well as development of therapeutic regimens. By caring for patients students develop an understanding of relationships between disease states and patient hosts from the medical, social, and emotional points of view. The ward team approach allows students the opportunity to work toward the goals of good patient care and the acquisition of a solid foundation of medical knowledge. In order to ensure a broad experience in internal medicine, students are expected to supplement their learning through a self-study program of learning objectives. Prerequisite: CCS 502. FA WI SP SU [12 weeks] Rosen, Baker.

MED 604 Primary Care Internal Medicine. This clerkship is designed to expose you to primary care internal medicine, which is often times very different from the practice of inpatient medicine. The goals of the clerkship include: 1) to learn, to diagnose and care for acute and chronic medical problems in an ambulatory setting; 2) to become familiar with screening guidelines based on a patient's age and gender; 3) to begin to implement primary prevention during most patient encounters; 4) to become familiar with the policies and protocols of managed care; 5) to be able to perform a MEDLINE search efficiently and apply the information to your practice; and 6) to experience the rewards and satisfactions of the practice of internal medicine. These objectives are met through direct patient encounters, through participation in case-based lectures, and through a mentorship with primary care internists. Prerequisite: MED 601, Permission of course director. FA WI SP SU [4 weeks] Illinois Masonic: O'Brien.

MED 605 Geriatric Medicine. This elective is organized around the Johnson R. Bowman Center for the Elderly at Rush and the Plymouth Place Life Care Community in LaGrange Park. Students will be exposed to a broad range of elderly persons in a variety of settings. The breadth of geriatric medicine, including the role of caregivers, the role of institutions and the clinical concepts and skills related to quality care of the elderly will be stressed. Prerequisite: MED 601 or FAM 601. FA WI SP SU [4 weeks] Rush: Schnitzer, Illinois masonic: Lorsch.

MED 610 Internal Medicine Subinternship. Students function at an advanced level, doing histories and physical examinations, diagnostic evaluations, and initiation of appropriate therapy. There is close supervision by the staff of the Department of Internal Medicine. The course is primarily intended for students desiring additional clinical experience in internal medicine. Additional sites are Cook county, Christ, West Suburban, Illinois Masonic, and Rush North Shore hospitals. Prerequisite: FAM 601, MED 601, PED 601, SUR 601. FA WI SP SU (except July) [4 weeks] Rosen.

MED 611 Cardiology. The study of the diagnostic spectrum of cardiac evaluation including bedside assessment, critical care cardiology, electrocardiography, electrophysiology, echocardiography, cardiac catheterization, coronary angiography, coronary care, interventional cardiology, preventive cardiology and exercise testing. Patient study is carried out under the direction of the clinical staff. Similar experiences available at the other clinical sites. Prerequisite: MED 601. FA WI SP SU [4 weeks] Rush: Parrillo, Rush North Shore: DeLeo, Illinois Masonic: Stecy, LaGrange Memorial: Hamelka.

MED 612 Medical Intensive Care Unit. Experience in the recognition and management of medical emergencies, particularly the use of temporary pacemakers, bedside hemodynamic monitoring, use of mechanical ventilators, and management of renal emergencies and cardiac arrhythmias. Patient care is carried out under the direction of the clinical staff. Prerequisite: MED 601. FA WI SP SU [4 weeks] Rush: Balk, Cook County: Franklin, Illinois Masonic: Liao.

MED 613 Introduction to Cardiovascular Research. Student programs are individually planned with emphasis on understanding basic research techniques rather than on the accomplishment of a specific research project. Students participate in the research program of the Section of Cardiology, including projects in human hemodynamics, angiography, preventive cardiology, noninvasive studies, myocardial metabolism, clinical trials, cardiovascular electronics, critical care cardiology, and computer application. Prerequisite: MED 601. FA WI SP SU [4 weeks] Parrillo.

MED 614 Coronary Care Unit. The student will function as an integral member of a cardiology team that cares for acute cardiac patients from their admission to the CCU and follows them through to the step down unit. Prerequisite: MED 601, Permission of course director. FA WI SP SU [4 weeks] Illinois Masonic: Chiu.

MED 615 Emergency Medicine. Students will see patients in all areas of the emergency room under the supervision of attendings and residents. They will be expected to take a complaint-oriented history, with attention to pertinent past medical history, and perform a pertinent physical exam. They will record their findings on the Emergency Room Medical Record and discuss the patient with the attending. Together they will formulate a diagnostic plan, bearing in mind time and cost factors and priorities inherent in various diagnostic possibilities. Prerequisites: MED 601, SUR 601. FA WI SP SU [4 weeks] Rush: Hanashiro, Cook County: Nasr, Illinois Masonic: Rittenberry.

MED 617 Echocardiography. This rotation will offer the student an opportunity to become familiar with the basics of non-invasive cardiology assessment, primarily echocardiography. The student should become familiar with the indications, performance and interpretation of M Mode, 2 Dimensional, Color Doppler, Transesophageal Echocardiography and Intravascular Ultrasound. In addition, the student should become familiar with indications, performance and interpretation of

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pharmacologic and non-pharmacologic stress testing (Dobutamine Echo). Participation in performance and interpretation of exercise testing with/without nuclear imaging is available. Multiple cardiology conferences are held on a daily basis, including an echocardiography conference of an hour long duration. Ultimately, the above-mentioned objectives will enhance the student's understanding of pathophysiologic phenomena in cardiovascular diseases, and will certainly impact at the clinical level, resulting in better understanding of the evaluation of cardiovascular illnesses. This rotation is not offered during the month of July. Rush students only. Prerequisite: MED 601, Permission of course director. FA WI SP SU [4 weeks] Illinois Masonic: Herrera.

MED 618 Electrocardiography. Reading large numbers of ECGs one-on-one with the instructor, with emphasis on differential diagnosis and ECG criteria for various pathologies. Experience in arrhythmia analysis with criteria for specific arrhythmic diagnosis correlation between hospitalized patients and their ECGs. Computer searches for criteria for various ECG abnormalities are included in the clerkship. Prerequisite: MED 601, Permission of course director. FA WI SP SU [4 weeks] Illinois Masonic: H. Cohen.

MED 621 Clinical Endocrinology and Metabolism. Endocrine and metabolic disorders are studied under the direction of the clinical faculty. Regular didactic sessions, departmental conferences and seminars supplement clinical work, which involves both outpatients at Cook County Hospital and Rush and inpatients at Rush-. Prerequisite: MED 601. FA WI SP SU [4 weeks] Rush: Mazonne, Cook County (Includes Endocrinology and Diabetes): Kannan.

MED 626 Clinical Nephrology. The clinical diagnosis and management of patients with renal disease as well as various fluid, acid-base, and electrolyte abnormalities are studied. In addition, the course is directed toward the proper interpretation of pathophysiologic findings and the practical management of various disorders involving the excretory system and body fluids. Prerequisite: MED 601. FA WI SP SU [4 weeks] Rush: Lewis, Cook County: Dunea, Illinois Masonic: Ball.

MED 632 Digestive Diseases. All aspects of hepatology and gastroenterology are studied. Students will spend two weeks on the hepatology service. The didactic sessions cover a broad range to topics. Teaching is an integral part of rounds. Students evaluate patients and follow their clinical course. Observation of endoscopic procedures is encouraged. Active involvement in patient care with interactions with fellows and attending staff are key to the functioning of the services. A weekly conference held jointly with Cook County Hospital covers clinical aspects of gastroenterology and liver disease. Research conferences and journal club are also available. Prerequisite: MED 601. FA WI SP SU [4 weeks] Rush: Schaffner, Cook County: Attar, Illinois Masonic: Konicek.

MED 636 Hematology. Students receive an intensive exposure to clinical hematology by meeting with residents, fellows and a teaching-attending hematologist daily for presentation and discussion of hospitalized hematology

patients. Students work-up patients, present them to the attending and participate in patient care with medical residents. Blood and bone marrow slides on the service patients are reviewed daily with attending hematologists using a teaching (multi-headed) microscope. Bedside rounds follow the daily presentation of cases. On Tuesday, a multidisciplinary lymphoma conference presents diagnostic and therapeutic aspects of the malignant lymphomas. On Wednesday, a clinical conference is held in which a patient is presented and discussed in depth by students, residents and faculty. On Thursday, intra- and extramural faculty participate in a hematology lecture series. A recent addition to this elective is a daily self-learning session with a faculty member on a core topic of hematology. Twenty of these topics cover the spectrum of hematologic diseases. Prerequisite: MED 601. FA WI SP SU [4 weeks] Rush: Gezer, Cook County: Patel, Illinois Masonic: Chediak.

MED 646 Infectious Disease Consults. Students are exposed to a wide variety of acute and chronic infectious disease problems with emphasis on diagnostic and therapeutic approaches. Teaching is conducted in a case-study format in which students see new patients and present them to the attending on consultation rounds. Students attend a weekly two-hour infectious disease conference at Rush where they may present cases. In addition, sixteen lectures on basic infectious disease topics are presented over the four weeks. Prerequisite: MED 601. FA WI SP SU [4 weeks] Rush: Benson, Cook County: Weinstein. Illinois Masonic: Malow.

MED 647 Infectious Disease Externship. As externs on the Infectious Disease inpatient ward, students will act as daily care providers for newly admitted patients with HIV/AIDS, most of whom have opportunistic infectious and/or malignancies requiring in-hospital diagnostic evaluation and therapy. Students will participate in daily multi-disciplinary team courses that include an Infectious Disease attending, Intern Medicine house staff, clinical pharmacist, nurse practitioners, weekly multi-disciplinary rounds which include a psychologist, social worker, dietitian, and a dedicated nursing staff. Students also will spend one-half day per week in the outpatient HIV clinic under the supervision of an Infectious Disease physician. Didactic sessions include a weekly one-hour Infectious Disease conference conducted at Cook County Hospital, a two-hour clinical Infectious Disease conference held at Rush, and sixteen lectures on basic Infectious Disease topics. Prerequisite: MED 601. FA WI SP SU [4 weeks] Cook County: Pulvirenti.

MED 648 HIV Primary Outpatient Care. This is a public hospital outpatient HIV clinic which provides comprehensive primary care to a large number of urban patients. Students will become familiar with HIV primary care including testing and counseling, new patient work-up, health maintenance, prophylaxis, advanced directives, and antiretroviral therapy. Prerequisite: MED 601. FA WI SP SU [4 weeks] Cook County: Barker.

MED 649 HIV Service. A four-week inpatient HIV clerkship with responsibility for direct patient care. Four hours of didactic lecture per week and daily bedside rounds with teaching attendings. This rotation includes experience

in computer literature search and case presentation. Prerequisite: Senior standing. FA WI SP SU [4 weeks] Illinois Masonic: Moore.

MED 651 Rheumatology. Emphasis is on the fundamentals of joint examination, observation and performance of laboratory examinations on synovial fluid, and familiarity with the spectrum of laboratory procedures useful in rheumatologic diagnosis and treatment. The interdisciplinary approach relies heavily on contributions of immunology, orthopedics, diagnostic radiology, physiotherapy, and occupational therapy. Prerequisite: MED 601. FA WI SP SU [4 weeks] Rush: C. Brown, Cook County: Sequeira.

MED 661 Medical Oncology. Patients seen by the Section of Medical Oncology provide an ample and varied spectrum of oncological problems. Students study selected patients under the direction of members of the section. Various therapeutic approaches and complications occurring in the course of the disease are discussed. The program stresses the importance of the combined interdisciplinary approach, using the resources of the departments of surgery, therapeutic radiology, pathology, and nuclear medicine. Students will have the opportunity to participate in the teaching programs of the medical oncology ward on 10 Kellogg. Prerequisite: MED 601. FA WI SP SU [4 weeks] Rush: Leslie, Cook County: Shimoto, Illinois Masonic: S. Taylor.

MED 671 Pulmonary Medicine. The management of patients with pulmonary disease provides the focus for the study of clinical management, interpretation and use of pulmonary function and ventilatory studies, and gas management. The essentials of pulmonary physiology are emphasized. Prerequisites: MED 601, SUR 601. FA WI SP SU [4 weeks] Rush: Rosen, Cook County: Muthuswamy, Illinois Masonic: Tate.

MED 677 Clinical Allergy/Immunology. The goal of this elective clerkship is to provide an opportunity for medical students to become familiar with the principles important in the diagnosis and treatment of immunological diseases. To achieve this goal, the student will interact with the allergy fellows and the attending physicians. There will be ample opportunity for the student to participate in an active outpatient service and make daily teaching rounds on all inpatients on the allergy/immunology service. The student will attend several teaching conferences. In addition, the student will also be responsible for a seminar presentation at the end of the clerkship. Course director approval required. Prerequisite: MED 601. FA WI SP SU [4 weeks] A. Gewurz.

MED 681 Occupational and Environmental Medicine. The student will participate in three one-half day occupational medicine clinics per week; and will be assigned new and follow-up patients with occupational and environmental medicine (OEM) problems to evaluate and treat under supervision of one of the faculty. The student will attend all of the conferences listed on the attached schedule and will be responsible for giving one "clinical rounds" during the month. In addition, at least one site visit to a factory or environmental hazard site will be arranged. Research projects are available for students

wishing to make electives longer than one month. Prerequisite: MED 601. FA WI SP SU [4 weeks] Cook County: Hessler.

MICROBIOLOGY

MIC 451 Microbiology Concepts. An introduction to the morphological and physiological characteristics of infectious agents of importance in human disease. SP (5-1-5) [55 hours] Schechter.

MIC 501 Clinical Bacteriology. The experience provides rotation in each section of the diagnostic bacteriology laboratory with emphasis on laboratory identification of bacteria. Prerequisite: MIC 451. (v-v-v) [4 weeks]

MIC 505 Basic Microbiology. A graduate introductory course covering basic concepts in experimental bacteriology and prokaryotic molecular genetics. FA (4-0-4) Gupta.

MIC 521 Molecular Biology. A graduate introductory course covering general principles and experimental applications of nucleic acid structure, function and manipulation in eukaryotic cells. WI (4-0-4) Roebuck.

MIC 523 Molecular Genetics. Contemporary study of topics in gene organization, transcription, translation, and gene regulation. Alt. WI (2-0-2) Kwan.

MIC 531 Virology. Advanced study of human and animal viruses and their interactions with cells. Prerequisite: MIC 505. SP (5-0-5) Gupta.

MIC 590 Special Topics. Detailed independent study of contemporary topics in microbiology. (v-v-v) Staff.

MIC 599 Independent Study. Specialized course work designed around the particular needs of an individual student. (v-v-v) Staff.

MIC 610 Clinical Microbiology. Students will rotate through each of the basic areas of the microbiology laboratory. Specimen handling, laboratory identification of organisms, and clinical correlation are covered. Permission of instructor. Prerequisite: Basic clinical microbiology course, OSHA blood-borne pathogen training.. [2 weeks] Landay.

MEDICAL PHYSICS

MPH 457 Radiation Safety of Radioactive Materials. This course reviews basic nuclear physics and health physics principles and practices, regulations and instrumentation for the safe use of radioactive material. FA (2-0-2)

MPH 458 Radiation Detection and Measurement. A study of basic physics principles and applications with laboratory exercises on techniques and instrumentation for nuclear radiation detection and measurement as they relate to nuclear physics and radiation safety of radioactive materials. Prerequisite: MPH 457. WI (1-3-2)

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MPH 460 Introduction to Medical Physics. An introductory course in physics for residents in diagnostic radiology, nuclear medicine and radiation oncology. The course covers medical x-ray equipment design and use, clinical dosimetry, and quality assurance. SU (3-0-3)

MPH 461 Physics of Diagnostic Radiology. An intermediate course in physics for residents in diagnostic radiology and nuclear medicine. Prerequisite: MPH 460. FA (3-0-3)

MPH 463 Physics of Nuclear Magnetic Resonance Imaging. This course is a basic introduction to the physical principles of MRI, with emphasis on proton MRI. Topics covered will include fundamentals of magnetic resonance, relaxation times, and the basis for imaging techniques. FA (2-0-2)

MPH 464 Concepts in Magnetic Resonance Imaging. A basic conceptual overview of magnetic resonance principles as applied to image formation is provided. Fundamental proton magnetic resonance concepts as well as basic imaging principles will be discussed on a level appropriate for medical residents in radiology. This course is structured as a subset of MPH 463. FA (1-0-1)

MPH 465 Computer Science Applied to Imaging. The objective of this course is to present the fundamentals of computer science to physicians whose specialty is in diagnostic imaging. WI (2-0-2)

MPH 471 Physics of Nuclear Medicine I. The course covers mathematics and detectors used in nuclear medicine. Imaging instrumentation, including scintillation camera, emission tomography, and application of the computer to nuclear medicine is covered. SP (3-0-3)

MPH 475 A Workshop in Radiopharmaceutical Science. This course covers production of radionuclides, generators; formulation and Q.C. of tracers for 16 organ localization, in vitro and in vivo studies; dosimetry; FDA and safe handling. Compounding, biodistribution, and imaging will be studied in the laboratory. (1-0-1)

MPH 481 Introduction to Medical and Therapeutic Radiological Physics. An introductory course in physics for residents in radiation oncology covering all materials of MPH 460 with additional clinical dosimetry and laboratory demonstrations. SU (3-1-4)

MPH 482 Therapeutic Radiological Physics. An intermediate course in physics for residents in radiation oncology. The five "p's" of radiation therapy physics are examined: prescription, physical dose, planning, precision, and pattern of treatment outcome. Additionally, interactions of x-rays and gamma-rays; measurement of exposure, calibration of high-energy photon and electron beams; and dose distributions for external-beam therapy are studied. Prerequisite: MPH 460. FA (3-0-3)

MPH 483 Dosimetry Applied to Therapeutic Radiology. An introductory course in clinical medical physics for therapeutic radiology trainees, including residents, graduate students, dosimetrists and technologists. SU (3-1-4)

MPH 484 Brachytherapy Physics. This course is designed for residents in therapeutic radiology and graduate students. Topics include basic physics of radioactivity, and use of radioactive isotopes in clinical radiotherapy. Prerequisite: MPH 482. WI (2-0-2)

MPH 486 Introductory Hyperthermia. This course will cover the physical and biological mechanisms of hyperthermia as well as the commonly used methods for delivery of heat energy for cancer therapy. (2-0-2)

MPH 490 Diagnostic Radiological Physics Review. An intensive review course in all branches of medical radiological physics for preparation for the Board of Radiology Certification Examination. Prerequisites: MPH 461, 471. (3-0-3)

MPH 491 Introduction and Application of Computers in Medical Physics. The course covers basic components and a systematic presentation of computer programs useful in medical physics. (2-0-2)

MPH 492 Therapeutic Radiology Physics Review. An intensive review course for therapeutic radiology residents and graduate students in medical physics in preparation for the American Board of Radiology Certification Examination. (2-0-2)

MPH 501 Radiation Physics. This course provides a rigorous examination of the interaction with matter of high-energy particles: photons, electrons, neutrons, and heavy-charged particles. FA (4-0-4)

MPH 502 Radiological Physics I. The course covers design and operation of accelerators; radiation quantities and units including stochastic and nonstochastic quantities; ion collection and recombination; and dosimetry systems used in therapeutic radiology and radiobiology. Prerequisite: MPH 501. WI (4-0-4)

MPH 503 Radiological Physics II. Continuation of MPH 502. SP (4-0-4)

MPH 504 Topics in Medical Physics. The course covers selected topics in radiation detection, interaction, and protection. Topics will also be selected from radiation dosimetry and diagnostic and therapeutic imaging. Prerequisite: MPH 502. (v-v-v)

MPH 505 Radiological Physics Laboratory. This is a practical course directed towards understanding of the instruments, computers, apparatus, and facilities used in applied radiation work. This course will include carrying out scientific evaluation and essay-type reporting. MPH 502. (v-v-v)

MPH 506 Clinical Physics Practicum. Students participate in providing clinical physics service under supervision. Practica currently available are offered each term as listed below. (v-v-v)

MPH 506A Diagnostic Imaging.

MPH 506B Radiation Therapy.

MPH 506C Radiation Protection.

MPH 531 Radiation Biology. The course will consider ionizing radiation effects on single cells, organized tissue, and the known effects on man. Emphasis will be put on those radiobiological principles which closely relate to cancer treatment. SP (3-0-3)

MPH 542 Radiation Oncology. This course will develop the basic concepts and principles of nonsurgical cancer management. The natural history of cancers in various organs will be reviewed and therapeutic strategies developed based on the pathophysiology of different cancer sites. (2-0-2)

MPH 565 Transfer Function Analysis. Starting with a rigorous presentation of Fourier transform theory, this course develops transfer function analysis for application to imaging systems. FA (2-0-2)

MPH 565 Digital Imaging. This course is organized as several computerized exercise modules to provide students with "hands on" experience in various digital imaging concepts. Prerequisite: MPH 565. WI (3-0-3)

MPH 581 Methods of Photon Dose Calculation. Current methods of photon dose calculation for radiation treatment planning systems, particularly those using interaction kernels. Prerequisite: MPH 565. (2-0-2)

MPH 582 Methods of Electron Dose Calculation. Methods of Electron Dose Calculation. Current methods of electron dose calculation for radiation treatment planning systems, particularly those based upon Gaussian multiple-scattering theory. Prerequisite: MPH 565. (2-0-2)

MPH 583 Monte Carlo Methods. The EGS4 Monte Carlo code for photon/electron transport will be explained, with emphasis upon gaining "hands on" experience in using this research tool. (2-0-2)

MPH 590 Medical Physics Research Seminar. This seminar serves as a forum for review of the ongoing research by the faculty, appropriate staff members, fellows, and graduate students. (1-0-1)

MPH 597 Introduction to Research. The student will undertake a directed project with a faculty member as an introduction to research. (v-v-v)

MPH 598 Research. Under the guidance of a faculty member and committee, the student originates, proposes and executes basic or clinical research. (v-v-v)

MPH 599 Independent Study. The student will undertake a creative project design under the supervision of a faculty member. (v-v-v)

MPH 699 Dissertation Research. Postcandidacy research by arrangement with staff. (v-v-v)

The following courses are offered if there is enough demand:

MPH 571 Physics of Nuclear Medicine II. The course covers production of isotopes, radiation detection, pulse height analysis, counting statistics, imaging theory, Fourier

analysis, scintillation camera, collimation of radiation, image recording, noise analysis, image processing, quality assurance, radiation safety, evaluation of image quality, digital computers in nuclear medicine, dynamic and functional imaging, emission computed tomography, biokinetics and compartmental modeling, and radioimmunoassay. Prerequisite: MPH 471. (3-0-3)

MPH 575 Nuclear Science Techniques as Applied to Biology and Medicine I. This course covers radioactivity, measuring devices, production modes; nuclear reactor, cyclotron, generators; radiochemistry, labeling (^3H , ^{14}C , ^{125}I); and autoradiography, body counting, NAA. (2-0-2)

MPH 576 Nuclear Science Techniques as Applied to Biology and Medicine II. This course covers: labeling ($^{99\text{m}}\text{Tc}$, ^{131}I , ^{75}Se , ^{11}C , ^{13}N , ^{18}F) & Q.C.; tracers for 16 organs; applications in nuclear medicine, therapy, in vitro, hematology; dosimetry; radiation safety; licensing; and FDA. Prerequisite: MPH 575. (2-0-2)

MEDICAL TECHNOLOGY

MTK 301 Information Science. Introduction to Personal Computers, E-Mail and the Internet. Students will participate in a research project involving data collection via the World Wide Web. Departmental permission required. (2-0-2)

MTK 311 Professional Development Projects I. Students participate in a professional enrichment project. Each project may vary from one quarter in length to five quarters in length. Projects include, but are not limited to, the following: practical experience at alternate sites in which medical technologists work, e.g. local clinics, health centers, nursing homes, research facilities, various industrial firms, and/or community hospitals; community activities such as presenting information sessions to senior citizen groups, various professional groups or at local association and club meetings; participation in the development of science fair projects and science fair judging at local area schools; areas of special research interests; other areas chosen for their enrichment potential. Departmental permission required. (0-3-1)

MTK 312 Professional Development Projects II Continuation of MTK 311. Departmental permission required. (0-3-1)

MTK 313 Professional Development Projects III. Continuation of MTK 312. Departmental permission required. (0-3-1)

MTK 401 Point of Care Testing. Decentralized laboratory testing is analytical testing performed at sites in the hospital, but physically located outside the hospital's central laboratory. The testing sites are either under the jurisdiction of the organized pathology and medical laboratory or another department/service. From Joint Commission Perspectives, January/February 1990. This course provides an overview of the requirements and implementation of such a program from the laboratory's perspective. Students are introduced to POC definitions and terminology. Requirements of the various accrediting

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agencies are reviewed and the role of the MT consultant is defined and discussed. Emphasis will be placed on quality assurance issues related to interdepartmental cooperation. The most common point of care testing devices will be demonstrated as well as non-instrument test kits. Competency documentation and proficiency surveys will be covered. Students will be required to demonstrate competency performing bedside tests and an understanding of the theory covered in lectures. Departmental permission required. (1-0-1)

MTK 402 Quality Monitoring. Introduction to the concepts of quality control, proficiency testing, laboratory accreditation, reference ranges, predictive value theory, method evaluation and other aspects of quality assurance. Departmental permission required. (1-0-1)

MTK 403 Laboratory Management. Fundamentals of management including human resource management, finance and reimbursement, quality assessment and improvement, leadership, communication, and decision making/judgment skills will be emphasized. Interactive sessions and problem based learning techniques will be used to help the student understand important leadership and management concepts. Departmental permission required. (2-0-2)

MTK 404 Communications. Interpersonal and organizational communication techniques with in-depth study of creating effective communication with subordinates, peers and managers. Consultation and project management techniques will be included. Departmental permission required. (2-0-2)

MTK 405 Clinical Laboratory Information Systems. An introduction to computers and other information systems which includes laboratory information systems, internet, networks, PCs, and future trends. Fundamental computer concepts, software validation, security issues, and system analysis will be discussed. A project requiring use of computer resources will reinforce lecture material. Departmental permission required. (2-0-2)

MTK 411 Professional Development Projects IV. Continuation of MTK 313. Departmental permission required. (0-3-1)

MTK 412 Professional Development Projects V. Continuation of 411. Departmental permission required. (0-3-1)

MTK 413 Professional Development Projects VI. A comprehensive review of the medical technology curriculum. This course is designed to help graduating senior students pass the certification examinations for Medical Technology and Clinical Laboratory Science. Students are given a Departmental Comprehensive Examination at the completion of this review. Each section of this examination must be passed for successful completion of the course. Departmental permission required. (0-3-1)

MTK 421 Clinical Practicum- Chemistry. Rotation through the hospital clinical chemistry laboratories. The course includes the application of basic skills learned in

student chemistry laboratory, instrumentation, and advanced methodologies. Departmental permission required. (0-24-8)

MTK 422 Clinical Practicum- Hematology. Rotation through the hospital clinical hematology laboratories. Application of basic skills learned in student laboratory, instrumentation, and advanced methodologies are included. Radiohematology, bone marrow techniques, and coagulation are also covered. Departmental permission required. (0-21-7)

MTK 423 Clinical Practicum-Immunology and Molecular Diagnostics. Rotation through the hospital clinical immunology laboratory. Application of basic skills learned in student laboratory, instrumentation, and advanced methodologies are emphasized. Departmental permission required. (0-6-2)

MTK 424 Clinical Practicum in Microbiology. Rotation through the hospital clinical microbiology laboratories. Application of basic skills learned in student laboratory, instrumentation, and advanced methodologies are emphasized. Departmental permission required. (0-24-8)

MTK 425 Clinical Practicum in Immunochemistry. Rotation through the hospital blood bank laboratory. Application of basic skills learned in student laboratory, instrumentation, and advanced methodologies are emphasized. Departmental permission required. (0-15-5)

MTK 426 Patient Care Techniques. Techniques of specimen collection and phlebotomy are discussed and practiced. Participants perform venipuncture and fingerstick procedures on in-house patients throughout the various areas of the hospital. Pediatric and geriatric patients are included as well as the general medical/surgical patients. Procedures for specimen processing and result reporting are learning. Departmental permission required. (0-6-2)

MTK 431 Categorical Practicum in Clinical Microbiology I. Rotation through the hospital clinical microbiology laboratories. Application of basic skills learned in student laboratory, instrumentation, and advanced methodologies are emphasized. For categorical students only. Departmental permission required. (v-v-v)

MTK 432 Categorical Practicum in Clinical Microbiology II. Continuation of MTK 431. Departmental permission required. (v-v-v)

MTK 433 Categorical Practicum in Clinical Microbiology. Continuation of MTK 432. Departmental permission required. (v-v-v)

MTK 434 Categorical Practicum in Clinical Hematology I. Rotation through the hospital clinical hematology laboratories. Application of basic skills learned in student laboratory, instrumentation, and advanced methodologies are included. Radio[HO]hem-atology, bone marrow techniques, and coagulation are also covered. For categorical students only. Departmental permission required. (v-v-v)

MTK 435 Categorical Practicum in Clinical Hematology II. Continuation of MTK 434. Departmental permission required. (v-v-v)

MTK 436 Categorical Practicum in Clinical Hematology III. Continuation of MTK 435. Departmental permission required. (v-v-v)

MTK 437 Categorical Practicum in Clinical Chemistry I. Rotation through the hospital clinical microbiology laboratories. Application of basic skills learned in student laboratory, instrumentation, and advanced methodologies are emphasized. For categorical students only. Departmental permission required. (v-v-v)

MTK 438 Categorical Practicum in Clinical Chemistry II. Continuation of MTK 437. Departmental permission required. (v-v-v)

MTK 439 Categorical Practicum in Clinical Chemistry III. Continuation of MTK 438. Departmental permission required. (v-v-v)

MTK 441 Research Seminar I. Discussion of current research topics in medical technology and associated fields. Students present abstracts. Departmental permission required. (2-0-2)

MTK 442 Research Seminar II. Continuation of MTK 441. Departmental permission required. (1-0-1)

MTK 443 Categorical Practicum in Clinical Immunology and Molecular Diagnostics I. Rotation through the hospital clinical microbiology laboratories. Application of basic skills learned in student laboratory, instrumentation, and advanced methodologies are emphasized. For categorical students only. Departmental permission required. (v-v-v)

MTK 444 Categorical Practicum in Clinical Immunology and Molecular Diagnostics II. Continuation of MTK 443. Departmental permission required. (v-v-v)

MTK 445 Categorical Practicum in Clinical Immunology and Molecular Diagnostics III. Continuation of MTK 444. Departmental permission required. (v-v-v)

MTK 446 Clinical Specialty Practicum. Clinical Rotation through a specialty area of students choice. Clinical sites vary depending on area of specialty. Requires a written report and oral presentation of experience. (v-v-v)

NURSING--ANESTHESIA

NAN 521 Chemistry and Physics in Anesthesia. An introduction to principles of chemistry and physics for nurse anesthesia practice. Major emphasis is on physical chemistry, e.g., states of matter, gas laws, thermodynamics and solutions. FA (4-0-4)

NAN 600 Residency in Anesthesia Nursing. A 52-week, 4-quarter residency following completion of the

anesthesia nursing curriculum which provides the opportunity of clinical proficiency in anesthesia practice. Includes journal clubs and conferences. One credit each term.

NEUROLOGICAL SCIENCES

NEU 451 Medical Neurobiology. An integrated approach to the central and peripheral nervous system from an anatomic, physiologic and neurochemical standpoint is presented. Based on neuroanatomy, major systems are developed and discussed in terms of anatomic arrangement, physiologic functioning and related synaptic pharmacology. In all systems clinical lectures highlight the practical applications of basic science concepts in patient evaluation and management. (6-3-7) [81 hours] Kerns, Zimmermann.

NEU 501 Introduction to Neuroscience. The physiology of neurons and glia, synaptic processes, sensory receptor physiology, spinal cord, cerebellum and motor control, peripheral mechanisms in sensory systems and higher functions of the nervous system. Neuroanatomical concepts will be correlated to the physiology. Prerequisite: ANA 465. WI (4-0-4)

NEU 511 Techniques in Neuroscience. Graduate students rotate through various faculty members' laboratories and master certain techniques commonly in use in neuroscience laboratories. (2) Staff.

NEU 525 Neuropsychopharmacology. Explores the fundamental pharmacodynamic mechanisms of drugs which act on the central nervous system. Drug classes to be studied will include anesthetic agents, opioids, antidepressants, and spasmolytics. Each of the ten, two hour lectures will begin with an introduction about a particular disease or disease state, emphasizing the neurobiology of that particular disorder. A detailed description of the mechanism through which a given drug class interacts with that neurobiology to affect its treatment follows. Graduate students taking this class will be expected to perform outside reading that complements the various lecture topics. Two multiple choice exams will be given. In addition, graduate students taking this course will have to complete a written take home final. The course is open to all Rush University graduate students who are interested in an in depth review of the pharmacotherapy of central nervous system disease. (2) Carvey.

NEU 541, 542 Statistics and Experimental Design for Neuroscience I, II. A two quarter course covering basic probability and statistical theory. It is not intended to cover all areas of advanced statistical application, but rather to provide the tools for comprehending analytical theory. During the last two weeks of class, guest speakers present examples of their research and statistical analyses. (4-0-4)(4-0-4) Stebbins.

NEU 551 Physiology of the Nervous System Function/Dysfunction. An introductory overview of central nervous system disease processes and their treatment. Disease states to be covered include those affecting the neuromuscular junction, the spinal cord, as well as the central nervous system. (4-0-4)

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NEU 591 Advanced Neuroscience Proseminar. Taught jointly by participating faculty, a seminar format is used to encourage extensive discussion and student participation. (6-0-6) Staff.

NEU 598 Pre-Dissertation Research. Research credits prior to acceptance to doctoral candidacy. (2 to 6) Advisor.

NEU 599 Independent Study. Specialized course work designed around the needs of an individual student. (v-v-v) Staff.

NEU 601 Core Clerkship in Neurology. Patients with various neurological disorders are studied; invasive and noninvasive techniques are observed and practiced. Designed to maximize the use of time that students spend in neurology, extensive discussion of each case by senior resident staff and attending physicians are utilized to enhance exposure to neurologic disease. Formal lecture attendance at weekly department conferences and teaching rounds held six days a week provide training in basic neurodiagnostic techniques. Prerequisite: MED 601 FA WI SP SU [4 weeks] R. Wright, Lewis.

NEU 602 Advanced Neurology. This advanced clerkship is intended to provide students the opportunity to further develop their clinical skills. Students will participate in the outpatient activities of the department and, in particular, will have ample opportunities to see patients in the movement disorder, epilepsy, muscular dystrophy, and multiple sclerosis clinics. This is a flexible program which will be structured to fit the interest and needs of individual students. Prerequisite: NEU 601. FA WI SP SU [4 weeks] R. Wright.

NEU 681 Neurological Research. Students participate in ongoing research projects within the department. Current areas of investigation include neuropharmacology, movement disorders, cerebrovascular disease, sleep disorders, epilepsy, neuromuscular disorders, multiple sclerosis, neurobiology of learning and memory, quantitative neuroimaging, age-related memory disorders and dementia. Generally participating in an ongoing project of a faculty member will be most practical. Prerequisite: NEU 601. FA WI SP SU [v] R. Wright.

NEU 690 Selected Topics in Neuroscience. Detailed study of contemporary topics in neuroscience. (1 to 4) Staff. Staff.

NEU 699 Dissertation Research. Research credits after admission to candidacy. (3 to 12) Advisor.

CLINICAL NUTRITION

NTR 503 Management in Dietetics. An examination of management strategies and techniques used in delivery of food and nutrition services in a health care setting. FA (2-0-2)

NTR 504 Management in Dietetics II. An overview of financial management concepts and tools important for planning, controlling, and decision-making in delivery of

food and nutrition services. Prerequisite: NTR 503. WI (1-0-1)

NTR 505, 506 Advanced Clinical Nutrition I, II. Technical, conceptual, and behavioral aspects of dietary prevention and treatment of disease states are presented. Students apply principles of medical nutrition therapy to various disease states. SP SU (4-0-4) (3-0-3)

NTR 511, 512 Supervised Experience in Food Systems Management I, II. Students function as members of the management team in the food service units of the medical center. Through increasingly complex learning experiences, students will be expected to develop competence as an entry level practitioner in food service management. Limited to clinical nutrition students. FA WI (0-24-3) (0-24-3)

NTR 513, 514 Supervised Experience in Clinical Nutrition I, II. Students will plan, organize, direct and evaluate nutrition care for individuals and groups of varying ages and lifestyles, in sickness and health. Students will function as members of the health care team with increasingly complex learning experiences and clinical responsibilities. Limited to clinical nutrition students. SP SU (0-24-3) (0-24-3)

NTR 515 Supervised Dietetic Staff Experience. This course places special emphasis on the metabolism of dietary components and key nutrients. Digestion, absorption and transport of food components, energy regulation, and energy requirements are emphasized. FA (3-0-3)

NTR 521 Human Metabolism I. This course places special emphasis on the metabolism of dietary components and key nutrients. Digestion, absorption and transport of food components, energy regulation, and energy requirements are emphasized. FA (3-0-3)

NTR 522 Human Metabolism II. This course places special emphasis on the metabolism of dietary components and key nutrients. Protein metabolism, and an overview of vitamins and inorganic nutrients are emphasized. Prerequisite: NTR 521. WI (3-0-3)

NTR 524 Advanced Vitamin Metabolism. Lectures and readings describe current consensus on the functional aspects of these micronutrients in man. Permission of instructor required. Prerequisite: NTR 522. (2-0-2)

NTR 525 Advanced Mineral Metabolism. Lectures and readings describe current consensus on the functional aspects of these nutrients in man. Permission of instructor required. Prerequisite: NTR 522. (2-0-2)

NTR 527 Advanced Protein Metabolism. Lectures and readings review mammalian protein metabolism in liver, muscle, intestine, and brain and emphasize metabolic changes in response to various diets, infection, and certain disease states. Permission of instructor required. Prerequisite: NTR 522. (3-0-3)

NTR 528 Advanced Carbohydrate and Lipid Metabolism. Lectures emphasize the role of diet

composition and starvation in the regulation of carbohydrate and lipid metabolism. Permission of instructor required. Prerequisite: NTR 522. (4-0-4)

NTR 534 Nutrition in Critical Care. This is an advanced level supervised experience in enteral and parenteral nutrition. Current rationale and techniques for assessing patient requirements and monitoring nutritional therapy in nonvolitionally fed patients will be explored. Special attention is given to metabolic complications associated with intravenous feeding. Prerequisite: NTR 542, 515 and permission of instructor. FA WI (0-20-3)

NTR 535 Nutrition in Pediatric Critical Care. This supervised practicum is based on scientific theory and practical application of nutrition support in critically ill infants and children. Studies include: nutritional requirements of premature infants; nutrition delivery in the neonatal intensive care unit; enteral and parenteral nutrition therapies for pediatric patients with a variety of diseases and organ dysfunctions. Permission of instructor required. Prerequisite: NTR 534. FA, WI (0-20-1)

NTR 541, 542 Interrelationships of Nutrition and Disease I, II. Pathophysiology of disease and the interrelated role of nutrition in genesis and treatment of disease are emphasized in this series. Permission of instructor required. Prerequisite: NTR 522 SP SU (4-0-4) (4-0-4)

NTR 543 Physiological Basis of Exercise and Nutrition. An examination of the physiological and metabolic adaptations to exercise and physical conditioning. Special attention is given to the nutritional needs of the human body in response to specific types of exercise. Permission of instructor required. Prerequisite: NTR 522, 542. (v-0-v)

NTR 551 Nutrition in the Life Cycle: Conception to Age One. A study of the nutritional requirements of women, the unborn child, and newborn. The infant needs are addressed with special attention to human milk and lactation. (2-0-2)

NTR 565, 566 Seminar I, II. Students and faculty will present topics/research related to food, nutrition and/or food service management. SP FA (1-0-v) (1-0-v)

NTR 572 Nutrition Communication. Theoretical models from a variety of disciplines will be introduced as potential frameworks for nutrition education. Students will explore strategies for oral and written communications and will learn techniques that may be applied in a variety of settings, with professional or lay audiences, individually or in groups. WI (3-0-3)

NTR 574 Management in Nutrition Care Systems. Emphasis is on the delivery of food and nutrition services within the cost effective parameters of an evolutionary health care system. WI (3-0-3)

NTR 582 Introduction to Research. The course will focus on selection of a research problem and identification of designs and methodologies available to address the research problem. In addition, the course is designed to

facilitate student interpretation and critical analysis of nutrition research literature. Prerequisite: PVM 541. WI (3-0-3)

NTR 583 Food Systems Operations Analysis. A study of significant food systems management issues in the healthcare industry. (1-0-1)

NTR 586 Thesis I. Under faculty supervision, students will prepare and present a research proposal. Emphasis will be on a review of current research literature and appropriate research design and methodology. Prerequisite: NTR 582 FA SP WI SU (2)

NTR 587 Thesis II. Students will continue the research process. Data collection and initial data analysis will be performed as defined in the research proposal. Pre or co-requisite: NTR 586 FA SP WI SU (3)

NTR 588 Thesis III. Students will continue the research process through the completion and interpretation of statistical analyses and oral and written dissemination of the research results and conclusions. Prerequisite: NTR 586 FA SP WI SU (2)

NTR 590 Special Topics. In depth examination of contemporary professional issues. Content varies according to topic choices by instructor. Prerequisite: Instructor approval. (v-0-v) (v-0-v)

NTR 592 Individualized Clinical Practice. For students who wish advanced experience in one or more areas of clinical nutrition practice. Limited to clinical nutrition students. (v-v-v)

NTR 599 Independent Readings. Independent work on a selected topic. Students will complete a literature search and written paper on a topic related to nutrition or food systems management. Arrangements must be made with advisor prior to registration. Prerequisite: Instructor approval. (0-0-v)

NURSING

NUR 301, 302 Concepts for Professional Nursing I, II. A two quarter course that focuses on the concepts underlying professional nursing practice. Students will be introduced to the history of nursing, the nursing metaparadigm, levels of prevention and clinical decision making. These core concepts will be incorporated into beginning components of the professional role, ie., clinical practice, education, research and leadership/management. (4)(4)

NUR 305 Health Assessment Across the Lifespan. This course provides an opportunity to learn how to perform comprehensive multidimensional assessment of the individual, through all phases of development. Techniques for assessment will be practices in a variety of health care settings. Assessment data will be related to categories of human functioning. (4)

NUR 305L Health Assessment Across the Lifespan Laboratory. P/NP grading. (1)

NUR 306 Health Assessment II: Family and Community Assessment. This course provides an opportunity to learn comprehensive and multidimensional assessment of the family and community. Epidemiologic techniques, tools and measurements are emphasized. Concepts of family and community as client are explored. Models and theoretical perspectives of family and community are used as foundations for assessments, analyses and diagnoses. Implications for primary, secondary and tertiary prevention are introduced. (5)

NUR 331, 332, 333, 431, 432 & 433 Nurse & Society I, II, III, IV, V, VI. This is a six quarter seminar course which will focus on the ethical, legal, political, sociocultural and economic issues and trends affecting professional nursing and health care. (1 credit each term)

NUR 341 Pathology I. This course provides a conceptual approach to the alterations in normal anatomic structure and function. General and system specific concepts related to the causation and clinical manifestations of pathology across the life span are discussed. Prototype illnesses will be used to illustrate pathologic concepts. (4)

NUR 342 Pathology II. Major psychopathologic disorders across the life span and their manifestations are explored through the use of conceptual frameworks. Demographic, epidemiologic environmental factors that create barriers to family and community health, including the interrelationships between family and community resources/action/health, are examined. (4)

NUR 351, 352 Pharmacology I, II. This two quarter course presents pharmacologic concepts and discusses them via classifications of drugs and representative agents (prototypes). Drug calculations, administration, and interactions will be discussed. Factors that affect drug absorption, distribution, metabolism and elimination are addressed; drug receptor interactions and dose response relationships are discussed. These pharmacologic considerations are related to nursing care and patient education of individuals across the life span and in a variety of settings. (3)

NUR 351L Pharmacology I Laboratory. P/NP grading. (1)

NUR 382 Introduction to Nursing Research. An introduction to the basic concepts, techniques, and methods of research process and evaluation of contemporary nursing research. (3)

NUR 406 Nursing and the Human Condition. Works of literature are used to explore issues of the human condition related to suffering, death, and professional ethics confronting nurses in professional practice. (3-0-3)

NUR 408 Women's Health Care. Synthesizes and applies a broad base of knowledge in the humanities, biological, and social sciences in nursing practice to women's health across the life span. (3-0-3)

NUR 415 Nursing Care of the Individual. Content focuses on common health problems of the adult client,

nursing therapeutics, and standards of care. Case study analysis and clinical management of clients in a variety of health care settings are included. (4)

NUR 415L Nursing Care of the Individual Laboratory. P/NP grading. (1)

NUR 415P Nursing Care of the Individual Practicum. (5)

NUR 416 Family Centered, Family Focused Care. The family is studied as it related to health and illness. Family oriented nursing interventions for families in transition and with children will be of primary focus. Clinical experiences will include caring for individuals and families in a variety of obstetrical and pediatric settings. (4)

NUR 416P Family Centered, Family Focused Care Practicum. (5)

NUR 417 Nursing Care of Community and Special Populations. Emphasis is on population based nursing interventions with communities, special populations, and groups at risk. (4)

NUR 417P Nursing Care of Community and Special Populations Practicum. (5)

NUR 418 Leadership/Management in Nursing Care. Role of the professional nurse as a leader and manager in acute, community, and long term settings. Focus is on transition into clinical practice with opportunity to further develop skills necessary for entry into practice. (3)

NUR 418P Leadership/Management in Nursing Care Practicum. (8)

NUR 421 Informatics. Use of information systems for community, institutional, research, and educational applications in health care. (3)

NUR 422 Basic Cardiac Arrhythmias. Self-paced mastery learning mode used to help students recognize and describe common disorders of cardiac rhythm, hemodynamic mechanisms and nursing implications. (2-0-2)

NUR 423 Intraoperative Nursing. Focus is on intraoperative phase of patient care. Prerequisite: Fourth year standing. (1-3-4)

NUR 424 Critical Care Nursing. Integrates pathophysiology, technology, and nursing practice of complex critically ill patients and their families throughout the lifecycle. Social, psychological and economic impact of critical care and nursing practice on society is discussed. Prerequisites: Fourth year standing.. (1-3-4)

NUR 441 Independent Clinical Study. Intensive independent study in a clinical area of nursing. (v)

NUR 449 Independent Study. Student contracts with nursing faculty for independent academic study in an area of nursing. (v)

NUR 472 Introduction to Normal and Clinical Nutrition. The focus of the course is nutrition and its relation to health and illness. Concepts to be explored include nutritive substances and processes, recommended dietary allowances, the basic four food groups, evaluation of nutritional status, and changing nutritional requirements throughout the life cycle. Drug and nutrient interactions, food misinformation, hospital diets, and specialized nutritional support techniques are also examined. (2-0-2)

NUR 501 The Use of Concepts, Models, and Theories in Nursing Practice. Emphasis of seminar course is on the use of models, the theoretical basis, and the operation of models in nursing. (2-0-2)

NUR 502 Role of the Nurse in Advanced Practice. Examination of professional nursing issues including legal, ethical, legislative, collaboration and collegiality, marketing and economical components. Models are examined that influence the scope of practice of nurses in advanced practice roles. (2-0-2)

NUR 503 Advanced Physical Assessment. Cognitive and clinical skills are enhanced from those developed in a basic physical assessment course. Cognitive and clinical skills are developed that are used in the provision of comprehensive care to adults within a hospital long-term care setting, and/or an ambulatory care setting. Prerequisites: RN licensure; license pending; validation exam; classified status. (3-3-4)

NUR 504 Management of Emergent Cardiopulmonary Situations. Focus is on the application of principles of advanced cardiac life support and emergency care to develop skills in understanding and managing acute respiratory and cardiac emergencies. Upon completion of this course, students have the opportunity to become ACLS certified. Prerequisite: BCLS certification. (1-3-2)

NUR 505 Ambulatory Diagnostics. Preparation in laboratory techniques necessary for the delivery of primary care practice is provided. (1-3-2)

NUR 507 Physical Activity: Exercise in Health and Disease. This seminar includes research-based discussions related to physical activity and exercise across numerous client populations, children to elderly, health to illness states, community to hospitalized clients. Emphasis is placed on assessment of physical activity, reliability and validity of current assessment measures, exercise tolerance testing, prescription, and exercise in health and disease. Prerequisite: One graduate level research course. (3-0-3)

NUR 508 Women, Feminism, and the Health Care Professions. The interface between feminism, gender, and the health care professions is explored. The sociopolitical context, the caring phenomena, and ethics serves as a framework. (3-0-3)

NUR 509 Powerful Presentations. This course provides students with the theory and practice in teaching and presentation strategies that will allow them to provide information in a way that optimizes participant learning. (2)

NUR 515 Advanced Practitioner as Teacher. An overview of the philosophy of education, teaching and learning theories, assessment and evaluation of learning, and teaching methodologies is studied within the context of application to public and professional education. (2-0-2)

NUR 516 Education Program Development and Design. Androgical principles are applied in the process of designing and developing educational programs. Transferrable concepts which may be applied to continuing and/or academic programs are considered. (3-0-3)

NUR 517 Evaluation in Health Care Education. Evaluation as a process of systematic inquiry which allows for the assessment of desired outcomes is explored through the analysis of various evaluation models. The evaluation process of identifying outcomes, collecting, interpreting, and using evaluation data in nursing practice, management, and education is examined. (3-0-3)

NUR 519 Advanced Practice Nursing in a Managed Care Environment. This course will provide the students with a comprehensive overview of the major components of continuous improvement (CQI) methodology. The impact of managed care and clinical pathways on quality and advanced practice roles will be discussed. (2)

NUR 521 Nursing Research: Critique for Practice. Research studies are analyzed and evaluated relative to an identified clinical problem. Includes concepts, methods, and strategies inherent to the research process with a focus on design, internal and external validity, sampling, measurement, and ethical issues. Prerequisite: PVM 541 or equivalent. (2-0-2)

NUR 522 Health Promotion and Disease Prevention. Models are used to discuss health states and to design health promotion strategies for community groups. Topics include target behaviors for intervention, forces influencing life style, and nursing practice techniques for improving health outcomes. (3-0-3)

NUR 523 Concepts and Issues in Clinical Nutrition. Current concepts and issues in clinical nutrition are examined. All age groups are included. Topics include: nutritional assessment, management of critically ill and immunosuppressed patients, ethical issues, physical fitness and athletic performance, obesity and other nutritional disorders. Prerequisite: Previous nutrition course. (2-0-2)

NUR 524 Scientific Basis of Cancer Treatment. Focus is on the scientific basis of diagnostic and therapeutic modalities of malignant disease including surgery, radiation therapy, chemotherapy, immunotherapy, and bone marrow transplantation. Relevant theories, research, and clinical applications are examined. (2-0-2)

NUR 525 Management Issues in Nursing. The theoretical and practical aspects of current issues in nursing management are explored. Issues include internal organization, power structure, external forces, cost management and quality assurance. (3-0-3)

NUR 526 Application of Community Development Theories to Populations at Risk. Presents an

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understanding of community development as a means of community empowerment as well as a therapeutic approach to primary prevention and the reduction of health risks among vulnerable populations. Examines multiple theories, models and strategies. (3-0-3)

NUR 529 Pharmacology. Drug interaction with body tissues, including absorption, distribution, metabolism and excretion is studied. Biochemical and physiologic mechanisms of drug actions are discussed. (3-0-3)

NUR 530 Pharmacotherapeutics. Advanced principles of drug intervention is discussed. Issues of drug action including uptake, distribution and metabolism related to all drug categories is emphasized. Focus is on assessment and nursing intervention related to drug therapy. Prerequisite: NUR 529. (1 - 6)

NUR 530A Pharmacotherapeutics in Nurse Anesthesia. Prerequisite: NUR 529. (6)

NUR 530B Advanced Principles of Pharmacotherapeutics for Neonatal Patients. Prerequisite: NUR 529 (2)

NUR 530C Psychopharmacology. Prerequisite: NUR 529 (2)

NUR 530D Advanced Principles of Pharmacotherapeutics for the Acute Care Patient. Prerequisite: NUR 529 (2)

NUR 530E Pharmacotherapeutics in Primary Care. Prerequisite: NUR 529 (2)

NUR 531 - 536 Clinical Seminars in Master of Science Nursing Practice. A matrix of nursing courses that allows concentrated study in a specialized area of nursing practice at the master's level.

NUR 531A Basic Principles of Anesthesia Nursing. Principles and skills basic to the practice of anesthesia are discussed. Focus is on patient assessment and planning care. Prerequisite: NAN 521, PHY 555, PPH 523. (3-0-3)

NUR 531B Advanced Principles of Nursing Care in Anesthesia Nursing. Anesthesia principles related to surgical specialties and perioperative management are discussed. Emphasis is on understanding of anatomic, physiologic/pathologic principles, and use of pharmacologic intervention. Prerequisite: NUR 530, 531A, PHY 556. (3-0-3)

NUR 531C Anesthesia Nursing Care of the Pediatric and Obstetrical Patient. Anesthesia related to the specialty areas of pediatrics and obstetrics is discussed. Specific assessment and planning skills needed for these patient groups are highlighted. Prerequisite: NUR 531B. (3-0-3)

NUR 532A Community Health Assessment: Basic Concepts and Methods of Community Health. Introduction to concepts and methods of assessing health status among community groups is presented. Theories

and epidemiological frameworks are incorporated into the health assessment of groups and populations. (2-0-2)

NUR 532B Community Health Assessment: Assessment, Diagnosis and Community Planning. Theoretical frameworks are used for the diagnosis of and planning for data based community health problems. Prerequisite: NUR 532A. (3-0-3)

NUR 532C Community Health Assessment: Program Implementation and Evaluation. Formulation of implementation strategies and evaluation schemes for program development are discussed. Emphasis is on evaluation methods and innovative nursing practice in the community. Prerequisite: NUR 532B. (2-0-2)

NUR 532G Community Health Nursing: Organizational Strategies. Emphasizes organizational theories; community health nursing functional roles at local, state, national and international levels; and models of practice as they provide a framework for community health nursing practice. Contemporary health issues, ethics, decision-making, policies and strategies are discussed and analyzed. (3-0-3)

NUR 532H Community Health Nursing: Resource Utilization. Provides an overview of planning concepts and strategies for resource utilization in community health nursing. Focuses on effective and efficient care through financial management, management of human resources, organizational and technical resource utilization, quality management and long term initiatives. (3-0-3)

NUR 533A Assessment and Screening in Parent/Child Nursing. Evaluation of assessment and screening tools in the care of parents, children and families is presented. Emphasis is on risk assessment. (3-0-3)

NUR 533B Nursing Care in High Risk Pregnancy. Focus is on recognition of actual and potential complications of pregnancy. Emphasis is on anticipatory guidance and nursing management. Prerequisite: NUR 533A, (3-0-3)

NUR 533C Nursing Care of the High Risk Neonate. Focus is on actual and potential complications of the neonatal period. Emphasis is on care of the premature infant. Prerequisite: NUR 533A. (3-0-3)

NUR 533D Nursing Care of the Acutely Ill Child. Management of acute health problems in the pediatric age groups is discussed. Developmental issues, research analysis patient and family teaching is incorporated. Prerequisite: NUR 533A. (3-0-3)

NUR 533E Nursing Care of the Chronically Ill Child. Management of chronic health problems in the pediatric age groups is discussed. Family functioning, long term care issues, emotional, social, economical implications are incorporated. Prerequisite: NUR 533 A. (3-0-3)

NUR 533F Primary Health Care of Children I. Synthesis of physical, psycho-social and developmental theories and concepts is provided for the management of

well children by nurse practitioners. Emphasis is on health promotion and disease prevention. (3-0-3)

NUR 533G Primary Health Care of Children II. Synthesis of physical, psycho-social and developmental theories and concepts is provided for the management of well children by nurse practitioners. Emphasis is on health promotion and disease prevention.(3-0-3)

NUR 533H Primary Health Care of Children III. Continuation of NUR 533G. (3-0-3)

NUR 533J Advanced Management of the At-Risk Pregnant Patient. Focus is on recognition and management of real or potential health problems and complications during pregnancy. Utilization of diagnostic modalities and development of advanced nursing intervention strategies is emphasized. (4-0-4)

NUR 533K Advanced Management of the High Risk Pregnant Patient. The course focuses on the recognition and management of major health problems and complications for the high risk patient and her family. Antepartal, intrapartal, and postpartal conditions are included. Clinical decision making and critical thinking theory provide the framework for development and implementation of treatment plans. Collaboration with medical management, provision of emergency services, and the development of advanced nursing skills are emphasized. (4-0-4)

NUR 533L Advanced Pediatric Acute Care Management I. Course focuses on the assessment, resuscitation, stabilization, triage and transport of the acutely ill child. Utilization of diagnostic modalities and development of advanced nursing intervention strategies are emphasized. Clinical decision making and critical thinking theory provide the framework for development and implementation of treatment plans. (4-0-4)

NUR 533M Advanced Pediatric Acute Care Management II. Course focuses on the management of complex disturbances in acutely ill children. Emphasis is on the recognition and management of major health problems and complications as they affect selected organ systems in the critically ill child. Clinical decision making and critical thinking theory provide the framework for development and implementation of teaching plans. (4-0-4)

NUR 534A Nursing Care of the Ill Adult. Focus is on the physiological and psychological concepts applicable to the medical and surgical adult patient. Advanced practice is addressed with application of concepts to particular area of student interest. (3-0-3)

NUR 534B Nursing Care of the Critically Ill Patient. Concepts from basic and applied sciences of critical care nursing and research based strategies for implementation are applied to critically ill population of all age groups. Prerequisite: PHY 555, 556, PPH 523, 524. (4-0-4)

NUR 534C Nursing Care of the Chronically Ill Adult. The impact of chronic illness on the adult is explored.

Strategies for nursing management of common problems are emphasized. (3-0-3)

NUR 534D Nursing Care of the Cancer Patient. Focus is on clinical manifestations of infection, sepsis, spinal cord compression, nausea and vomiting, and stomatitis observed in cancer patients. Pathophysiological bases and interventions to prevent or minimize these manifestation are discussed. Emphasis is on the physiological and psychological sequelae. Prerequisite: NUR 524, PPH 522, permission of instructor. (3-0-3)

NUR 534H Nursing Care of the Cardiopulmonary Patient. Research based concepts are studied of risk factor modification, activity tolerance and prescriptions, quality of life, limiting disease progression and evaluating rehabilitation benefits across the lifespan. Prerequisite: PHY 555, 556, PPH 524. (3-0-3)

NUR 534N Advanced Management of the Acutely Ill Medical Surgical Patient I. Course focuses on the recognition and management of major health problems and complications as they affect selected organ systems in the acutely ill medical surgical patient. Utilization of diagnostic modalities and development of advanced nursing intervention strategies are emphasized. Clinical decision making and critical thinking theory provide the framework for development and implementation of treatment plans. (3-0-3)

NUR 534P Advanced Management of the Acutely Ill Medical Surgical Patient II. This is the second in a two course series. Course focuses on the recognition and management of major health problems and complications as they affect selected organ systems in the acutely ill medical surgical patient. Utilization of diagnostic modalities and development of advanced nursing intervention strategies are emphasized. Clinical decision making and critical thinking theory provide the framework for development and implementation of treatment plans. (3-0-3)

NUR 535A Assessment and Evaluation in Delivery of Mental Health Services. Focus is on the multiaxial assessment and interventions of major psychiatric syndromes within the context of the changing mental health care system. (3-0-3)

NUR 535B Nursing Care of the Psychiatric Patient. Theoretical basis for psychotherapeutic nursing interventions is examined from a developmental perspective. The collaborative work of nurse and client is examined from initial contact through termination. Prerequisite: NUR 535A. (3-0-3)

NUR 535C Group Psychotherapy. An in depth analysis of theory and research is presented as a basis for the clinical practice of group psychotherapy. Prerequisite: BHV 526. (3-0-3)

NUR 536A The Older Adult: Wellness and Frailty. The focus is assessment and nursing management for healthy and frail elderly to promote, maintain, and restore optimal functioning. (3-0-3)

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NUR 536B Older Adult: Common Health Problems. Management of common health problems of older adults is studied. Emphasis is on assessment and intervention related to health promotion, health maintenance, and restorative care. (3-0-3)

NUR 536C The Older Adult: Primary Care Management. The focus is assessment and management of health problems of older adults commonly encountered in primary care settings. Development of the critical thinking and clinical decision making skills required in the provision of primary health care services to older adults with complex physical and psychosocial needs is emphasized. (2-0-2)

NUR 541 Master's Practica. A minimum of 12 quarter hours of specialty practice are planned conjointly by the master's student and faculty member. Prerequisite: or Corequisite: Selected NUR 531-536, RN license. Clinical conference is included. (v)

NUR 547 Independent Clinical Study. Intensive independent study in a specialty clinical area of nursing is provided with faculty contract. Prerequisite: NUR 541. (v)

NUR 549 Independent Study. Contract with faculty member for conducting an independent academic study in a specialized area of nursing. (v)

NUR 551 Evaluation of Theories. Various methods of theory analysis are discussed and selected theories are analyzed. Emphasis is on utility of theories in nursing practice, education, and management. Prerequisite: NUR 501 or equivalent. (2-0-2)

NUR 553 Impact of Complex Systems on Health Care. Focus is on the impact of economic, political, technological, regulatory, and competitive forces on health care. (2-0-2)

NUR 561 Theoretical Basis of Genetic Health. Comprehensive examination of concepts and principles of clinical genetics is provided as foundation for advanced nursing practice in primary, secondary and tertiary health care. (3-0-3)

NUR 562 Advanced Principles in Genetic Health. A systematic analysis of advanced concepts and principles of clinical genetics is provided, emphasizing common models of genetic health problems and related therapeutic management. Prerequisite: NUR 561. (3-0-3)

NUR 565 Mental Health Issues in Older Adults: Theory, Practice and Research. Theoretical models, clinical interventions and current research concerning common psychiatric issues that confront older adults are expanded. Common issues to be addressed include: depression, dementia, physical and functional changes that accompany geropsychiatric illness. (3-0-3)

NUR 571 Using Research in Clinical Practice. Issues associated with diffusing nursing research and the challenge to incorporate research findings into the practice of nursing are studied. Theories and conceptual frameworks are critically analyzed that describe processes

for using research to change nursing practice. Prerequisite: NUR 521, PVM 541 or equivalent. (2-0-2)

NUR 580 Nurse Doctorate; Issues in Practice. Focus is on in depth discussions of clinical issues related to a practice area.

NUR 580A Issues in Pain Relief. Students explore the various theories of pain and how pain relief strategies evolve from these theories. The application of this knowledge to selected nursing practice situations is emphasized. (2-0-2)

NUR 581 - 585 Clinical Seminars in Nurse Doctorate Practice.

NUR 581A Primary Health Care Concentration Nurse Practitioner Seminar I. Focus on development of primary health care clinical judgement. Content is organized around concepts of health maintenance, health promotion, health and risk appraisal across the lifespan. Identification and management of common symptoms, signs and problems are incorporated within a multidisciplinary focus. Prerequisite: NUR 503, PHY 555, 556. (3-0-3)

NUR 581B Primary Health Care Concentration Nurse Practitioner Seminar II. Focus on development of critical thinking and clinical decision making skills in the provision of primary health care services to selected clients across the lifespan. Recognition, assessment, and management of simple acute and uncomplicated chronic illnesses within a multidisciplinary focus are emphasized. Prerequisite: NUR 581A. (3-0-3)

NUR 581C Primary Health Care Concentration Nurse Practitioner Seminar III. Focus on the recognition, assessment, and management of clients and families with complex primary health care problems across the life span. Provision of services within a multidisciplinary approach and appropriate use of resources are emphasized. Prerequisite: NUR 581B. (3-0-3)

NUR 581D Primary Health Care Concentration Nurse Practitioner Seminar IV. Emphasis on refinement of cognitive and clinical judgement. Issues related to family, bio-socio-psychological, epidemiological, and community health care knowledge are integrated. Students maximize assessment and management skills while dealing with clients with multidimensional problems in various healthcare settings and systems. Prerequisite: NUR 581C. (3-0-3)

NUR 583C Advanced Psychiatric Nursing Practice in Complex Health Care Delivery Systems. Analysis and practical application of concepts essential to designing psychiatric treatment delivery systems. The student will learn nurses' roles as program directors, information and outcome managers and coordinators of seamless health care delivery systems. (3-0-3)

NUR 583D Ethics in the Clinical Setting. Ethical issues for a specialty clinical area are analyzed using ethical theories, principles, and values. Ethical decision making skills are developed. (1-1-2)

NUR 584A Advanced Management of the At Risk Neonate. Assessment, stabilization, and management of infants at risk for common problems associated with prematurity. Prerequisite: PPH 525, NUR 533C. (3-0-3)

NUR 584B Advanced Management of the Acutely Ill Neonate. Management of complex disturbances in the neonate. Emphasizes alterations in the cardiopulmonary, neuromuscular, renal, gastrointestinal and multisystem function. Prerequisite: PPH 525, NUR 533C. (3-0-3)

NUR 585A Advanced Nursing Care of Families with Genetic Health Problems. A theoretical and research-based approach to advanced nursing practice of children and families with genetic problems is presented. Emphasis is placed on primary care (health promotion and disease prevention), secondary, and tertiary prevention across the life span. Prerequisite: NUR 561, 562. (3-0-3)

NUR 585B Realities of Genetic Health: Ethics, Law and Policy. An interactive consideration of issues related to implementing genetically influenced health care across the lifespan. Topics will focus on the integration of genetic health, ethics, law and health care policy into the role of the advanced nurse practitioner. Prerequisite: HSM 560. (2-0-2)

NUR 586 Introduction to Multivariate Statistics.

NUR 588 Doctor of Nursing Project. An individual or a group of students contract with faculty members to plan, initiate, and evaluate a research based change in nursing practice. (2)

NUR 589 Publishing in Nursing. Discusses issues related to publishing in nursing. Emphasis is on publishing journal articles, book reviews and abstracts. (2-0-2)

NUR 590 Special Topics. Courses offered as electives in special areas of faculty interest or expertise upon demand. (v-v-v)

NUR 591 Doctor of Nursing Practica. A minimum of eight (8) credit hours of specialty practice are planned conjointly by the nurse doctorate student and faculty member. Prerequisite or Corequisite: Selected NUR 581-585.

NUR 596 Nurse Doctorate Seminar. Student and faculty identify and explore issues and problems that evolve as students develop and enact dimensions of the nurse doctorate role. Prerequisite: NUR 502 or equivalent, 571, 4 q.h. of NUR 591. (2-0-2)

NUR 599 Independent Study. Student contracts with faculty member for independent academic study in a selected area of nursing. (v)

NUR 600 Nurse Practitioner Residency. (2)

NUR 601 Theory Development. Theory construction is explored through the study of the philosophy of science. Course extends over two quarters. Prerequisite: NUR 501 or equivalent. (4-0-4)

NUR 623 Administrative Issues in Education. An interactive approach relating research and practice in higher education to structures and processes of nursing education administration. Prerequisite: NUR 601 or equivalent. (3-0-3)

NUR 671, 672 Research Design and Methods I, II. Promoted are the development, integration, and application of knowledge, attitudes, and skills requisite to functioning as a clinical nurse scientist. Emphasized are the critical appraisal of selected measuring mechanisms and the design of clinical nursing research study. Prerequisite: PVM 543 or 8 q.h. graduate statistics. (3-0-3) (3-0-3)

NUR 675 Qualitative Research Methods. Focus is on selected issues in the design, conduct, and reporting of qualitative research. Experience with data management and analysis included. Prerequisite: NUR 672. SU (3-0-3)

NUR 681 Theoretical Frameworks for Research. Students concentrate on the articulation and analysis of the theoretical framework which supports their dissertation research. Emphasized is the clarity of the logic which connects concepts and ties the framework to the student's research interest. (3-0-3)

NUR 688 Directed Research. Independent research experience to test theory and/or gather data under the guidance of a faculty member is provided. Corequisite NUR 571 or 672 (1-4)

NUR 689 Research Grantsmanship. Information and skills essential to the process of development and submission of a research grant application is provided. Prerequisite: NUR 571 or 672, or permission of instructor. (2-0-2)

NUR 691 Doctorate of Nursing Science Practica. At least 20 credit hours of individually designed courses of independent study are planned conjointly by the doctoral student and the academic advisor. (v)

NUR 696 Doctorate of Nursing Science Seminar. The components of clinical practice in Nursing is critically analyzed at the Doctor of Nursing Science level. Prerequisite: Minimum 6 q.h. NUR 691 and no more than 10 q.h. of NUR 691. (2-0-2)

NUR 699 Dissertation Research. Contract with faculty members and Associate Dean for Nursing Education for independent research. Doctoral candidate must be enrolled for at least three quarter hours each quarter until dissertation has been defended. Prerequisite: Completion of clinical defense. (v)

OBSTETRICS AND GYNECOLOGY

OBG 601 Core Clerkship in Obstetrics and Gynecology. A study of the female reproductive tract with emphasis on routine gynecologic health care maintenance and patient education. Identification and management of high-risk pregnancy, infertility and other endocrinopathies, gynecologic oncology, family planning, psychosomatic disorders and normal psychological changes in obstetrics and gynecology as well as

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gynecologic surgery are some of the areas covered in detail. Prerequisite: CCS 502. FA WI SP SU [8 weeks] Fenner.

OBG 605 Normal Obstetrics. Elective clerkship in normal obstetrics. Prerequisite: OBG 601. FA WI SP SU [4 weeks] Merrick.

OBG 621 Advanced Obstetrics. This elective emphasizes one-on-one teaching, and provides extensive experience in the management of normal and high-risk patients during labor and delivery. Students will admit and follow patients during labor and postpartum, and perform or assist at all deliveries and operative procedures under the supervision of the resident and attending staff. Improving skills in performance of the pelvic examination is a major goal of this elective. Reading material will cover the physiology of labor, obstetric anesthesia, fetal monitoring, and techniques of operative delivery. Extensive exposure to office antepartum management will also be provided. Prerequisite: OBG 601. FA WI SP SU [4 weeks] Meserow.

OBG 631 Maternal Fetal Medicine/High Risk Obstetrics. Emphasis of this elective is on the identification and management of high risk pregnancy. Ultrasonography, amniocentesis, medical and surgical complications of pregnancy, and operative obstetrics are some of the specific topics dealt with in detail. Students participate in ante-partum management of hospitalized and ambulatory pregnant patients with high risk conditions. Additional exposure to intra-partum problems is obtained through daily clinical teaching rounds and through follow-up of high-risk ante-partum patients as they go through labor and delivery. Special experiences and involvement in genetic counseling, prenatal diagnosis and obstetric ultrasound are also available. Prerequisite: OBG 601. FA WI SP SU [4 weeks] Rush: Strassner, Illinois Masonic: Hatoun.

OBG 661 Gynecologic Oncology. Gynecologic oncology encompasses the diagnosis, management and follow-up of female reproductive tract tumors. Students are introduced to the use of diagnostic procedures such as colposcopy, laparoscopy, and biopsies, as well as cancer surgery and treatment with chemotherapy. Prerequisite: OBG 601. FA WI SP SU [4 weeks] Rush: DeGeest, Cook County: Massad, Illinois Masonic: Dini.

OBG 667 Reproductive Endocrinology and Infertility. This elective provides clinical experience in diagnostic evaluation and therapeutic management of couples with infertility and women with gynecologic endocrine problems. The students participate in routine diagnostic studies, such as ovulation timing, postcoital tests, and endocrine evaluation and are introduced to the use of diagnostic and therapeutic procedures such as hysterosalpingography, ultra-sonography, laparoscopy, and hydrotubation. Students scrub on surgical reconstructive procedures involving the female reproductive system, participate in the activities of the in vitro fertilization program. Laboratory experience in performing hormone radioimmunoassay, sperm separation, antisperm antibody testing and other procedures may also be included.

Prerequisite: OBG 601. FA WI SP SU [4 weeks] Radwanska.

OCCUPATIONAL THERAPY

OCC 461 Health and Development. The nature of health, illness and disability and their effect on the fulfillment of developmental roles and functions throughout the life span. FA (3-0-3) Opacich.

OCC 463 Principles of Movement. The biomechanics of movement and the application of neuromusculoskeletal function to the performance of daily living tasks and activities are emphasized. FA (2-2-3) Morgan.

OCC 465 Group Dynamics. Didactic and experiential activities designed to familiarize the student with basic principles underlying group process and group behavior and clinical application of these principles in occupational therapy are studied. Prerequisites: OCC 501, PSY 501. WI (2-2-3) Lane, Cambron.

OCC 501 Activity Theory and Skills. The focus is on teaching, analysis and therapeutic application of activities. Analysis, history and skills in areas of play/leisure, self-care, homemaking, work and development of skills in performing selected activities are studied in depth. Theoretical constructs which provide the basis for occupational therapy practice are explored. FA (2-4-4) Adams, Silerzio.

OCC 502 Occupational Therapy History and Philosophy. An overview of the historical foundations of occupational therapy as they relate to the frames of reference and theoretical perspectives upon which the field is based. Prerequisites: OCC 461, 501.[el] WI (3-0-3) Adams, Silerzio.

OCC 506 Medical Conditions Seminar. A presentation and discussion of selected medical, surgical, neurological and orthopedic conditions with emphasis on their etiology, treatment and prognosis. SP (3-0-3) Opacich, Barnes.

OCC 510 Special Topics in Geriatrics Seminar. Seminars that address clinical and nonclinical issues that are specific to the role of occupational therapy with geriatric populations in a changing society. SP (3-0-3) Nolinske.

OCC 511 Occupational Therapy Interventions I. Students learn theories and conceptual models for intervention in the disease processes of psychosocial disorders which can be applied in medical, educational, and community settings. Simulated and actual patient management issues relative to psychosocial disorders are presented and discussed. Includes preclinical experiences in psychiatric settings. Prerequisites: OCC 465, 502, 503. SP (v-v-5) Bloom.

OCC 512 Occupational Therapy Interventions II. Theories and conceptual models of intervention are presented, based on biomedical principles and approaches to occupational therapy evaluation and on the treatment of individuals with nervous system disorders. Information is reviewed chronologically across the life span for both acute

and chronic conditions. Includes preclinical experience in selected settings. Prerequisites: OCC 463, 511, 541, NEU 501. FA (v-v-5) Nolinske.

OCC 513 Occupational Therapy Interventions III. Theories and conceptual models of intervention are presented, based on biomedical principles and approaches of occupational therapy evaluation and on the treatment of physically disabled individuals. Information is reviewed chronologically across the life span for both acute and chronic conditions. Includes preclinical experiences in selected settings. Prerequisite: OCC 512. FA (v-v-6) Nolinske.

OCC 516 Interventions I Fieldwork. Supervised part-time field experience related to the theory and application of occupational therapy in the area of psychosocial dysfunction. Corequisite: OCC 511. SP (v-v-1) Bloom.

OCC 517 Interventions II Fieldwork. Supervised part-time field experience related to the theory and application of occupational therapy in the areas of neurodevelopmental and biochemical dysfunction. Corequisite: OCC 512. SU (v-v-1) Nolinske.

OCC 518 Interventions III Fieldwork. Supervised part-time field experience related to the theory and application of occupational therapy in the areas of neurodevelopmental and biochemical dysfunction. Corequisite: OCC 513. FA (v-v-1) Nolinske.

OCC 521 Etiology of Occupation. A critical review of theories and practices of occupational therapy with projection of future models of practice. Includes examination of scientific knowledge, models of health care, sociological features of occupational therapy practice, and the study of human occupation and its description in illness. Prerequisite: OCC 502. SU (4-0-4) Adams.

OCC 531 Principles and Methods of Education. An exploration of the use of behavioral objectives, taxonomical levels of learning, and the application of the theories of classical and contemporary theories. A variety of media and techniques to enhance clinical and classroom teaching will be emphasized. SU (2-0-2) Staff.

OCC 533 Principles and Methods of Supervision. Introduction to the supervisory process based on principles related to education, interpersonal processes, and management. Prerequisite: OCC 531. Corequisite: OCC 545. FA (3-0-3) Bloom.

OCC 535 Issues and Perspectives in the Treatment of Children. A multi-disciplinary view of physiological, emotional and environmental phenomena affecting children. Stresses clarification of occupational therapy in the prevention or remediation of dysfunction. Prerequisite: OCC 461. WI (3-0-3) Opacich.

OCC 541 Tests and Measurements in Occupational Therapy. Administration, scoring, interpretation, and reporting of selected tests and informal assessments useful in an occupational therapy evaluation of clients of varying ages and disability. Prerequisite: OCC 463, 502. SP (2-4-4) Morgan.

OCC 545 Management Issues for Occupational Therapy in the Health Care System. Exploration and involvement in administrative activities related to effective delivery of occupational therapy services; includes budgeting, personnel policies and long-and short-term program planning. Prerequisite: organizational behavior course, OCC 521. FA (3-0-3) Brady.

OCC 571, 572 Computer Applications for Occupational Therapy I, II. An overview of computer applications in areas related to scholarly and clinical components of occupational therapy. SU FA (1) (2)

OCC 585 Research Proposal. Completion of a departmental proposal prior to the implementation of a research project. Prerequisite: OCC 581. FA (0-v-3) Lane, Staff.

OCC 590 Advanced Practice Seminar. Analysis and synthesis of issues related to clinical and ethical considerations and their implications for program development in various practice arenas. Prerequisite: OCC 595. SU (6-0-6) Opacich, Staff.

OCC 595, 596 Advanced Fieldwork I, II. Supervised field experiences applying theoretical concepts in occupational therapy with individuals having psychosocial/physical dysfunctions. Prerequisites: All previous coursework. Full-time student status is continued while engaged in fieldwork. WI SP (v-v-1) (v-v-1) Nolinske.

OCC 598 Thesis. Completion of a departmental project, based on the research proposal, for a master's degree thesis relevant to occupational therapy. Prerequisite: OCC 585. SP SU (0-v-3) Lane, Staff.

OCC 599 Independent Study. Creative project designed by the student and supervised by faculty. (v-v-v)

PEDIATRICS

PED 601 Core Clerkship in Pediatrics. The principles and practice of care from birth through adolescence are studied by direct patient contact. The primary objective is to provide an opportunity for students to become proficient in the clinical basis of pediatric diagnosis and therapy. Prerequisite: CCS 502. FA WI SP SU [8 weeks] Soglin.

PED 603 Special Care Nursery. This course is an introduction to the care of sick and premature newborn infants in the intensive care settings with emphasis on the normal sequence of events in the birth-recovery period, disruptions to that sequence and adaptation of the baby during the postpartum period. Care of the most common complications occurring at this age will be emphasized. FA WI SP SU [4 weeks] Bigger.

PED 604 Adolescent and Young Adult Medicine. This course provides direct experience in the care of patients hospitalized on the inpatient adolescent unit. There will also be an opportunity to see patients in the outpatient off of the course director as well as three off-campus sites for general adolescent health care, including

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family planning and sexually-transmitted disease treatment. The student is provided experience with managing disease processes which are unique to adolescents or manifested differently in this age group. There will be additional opportunity to see adolescents being evaluated and treated for eating disorders and other psychological problems. Prerequisite: PED 601 or MED 601. FA WI SP SU [4-8 weeks] Strokosch.

PED 605 Pediatric Ambulatory Care. This rotation offers students the opportunity to participate in primary care pediatrics in a variety of settings. A hands-on approach with individual attending supervision is emphasized. The student will follow private and clinic patients for both health maintenance and acute and chronic medical problems. Other settings available for student participation include Misericordia (chronic illnesses), the Rush General Care Nursery, the Rush Pediatric Emergency Room and various adolescent clinics in the community. The elective will be geared toward satisfying the student's individual needs and interests. Prerequisite: PED 601. FA WI SP SU [4] Weyher

PED 608 Behavioral Pediatrics. This elective is offered to students interested in improving their understanding of children and families and developing their skills in the area of behavioral pediatrics under direct supervision of the course director. Students will work in both the general pediatric and behavioral consultative settings. Prerequisite: PED 601. FA WI SP SU [4-8 weeks] Richtsmeier.

PED 610 Pediatric Subinternship. The subintern will function in a capacity similar to an intern on the infant/children or adolescent service. Supervision will be provided by senior residents and faculty physicians. Students are expected to take call every fourth night. Approval of course director required to drop the course within eight weeks of the start date. Prerequisite: PED 601, MED 601, FAM 601, SUR 601, fourth year standing only. FA WI SP SU (not offered in July) [4 weeks] Weyher.

PED 611 Pediatric Cardiology. Both ambulatory and inpatient experience are obtained in caring for children with congenital and acquired heart disease. Clinical history and physical findings are correlated with x-ray and electrocardiographic echocardiographic, and cardiac catheterization data. The student will participate medical and surgical management of patients, as well as learn the fundamentals of cardiac testing. The course includes didactic sessions, outpatient clinics and inpatient service. Prerequisite: PED 601. FA WI SP SU [4 weeks] Cutilletta.

PED 615 Chronic Diseases in Children. Based at Shriner's Hospital for Crippled Children, students will participate in an active inpatient and outpatient program which provides referral services to children with musculoskeletal disorders, neural tube defects and other chronic diseases. Prerequisite: PED 601. FA WI SP SU [4 weeks] Vogel.

PED 616 Pediatric Ambulatory Care. This rotation offers students the opportunity to participate in primary care pediatrics in a variety of settings. A hands-on approach with individual attending supervision is emphasized. The

student will follow private and clinic patients for both health maintenance and acute and chronic medical problems. Other settings available for student participation include Misericordia (chronic illnesses), the Rush General Care Nursery, the Rush Pediatric Emergency Room and various adolescent clinics in the community. The elective will be geared toward satisfying the student's individual needs and interests. Prerequisite: PED 601, Permission of course director. FA WI SP SU [4 weeks] Gaebler-Uhing.

PED 617 Pediatric Ambulatory Care. A wide variety of well and acute and chronically ill pediatric outpatients are seen under the supervision of general pediatricians as well as subspecialists. Basic elements of well child care, long-term care, medical record keeping, and quality assurance can be reviewed. Special interests can be pursued. Available only to Rush students. Prerequisite: PED 601. Available approximately every other month. [4 weeks] Illinois Masonic: Neafsey.

PED 621 Pediatric Endocrinology. This rotation provides students with a problem-oriented approach to pediatric endocrinology. All aspects of pediatric endocrinology are covered but particular emphasis is placed on normal and abnormal aspects of growth and pubertal development. The elective aims to highlight the role of the primary care provider in the initial evaluation of the pediatric patient with a suspected endocrine disorder and to provide the student with an introduction to specialized diagnostic endocrine testing and management of the endocrine patient. Prerequisite: PED 601. FA WI SP SU [4 weeks] Kreiter.

PED 622 Emergency Pediatrics. Forty hours per week is spent evaluating patients in the emergency room under the supervision of an attending pediatrician. Evening shifts (until 10 p.m.) are included. The student is required to maintain a log of patients seen and procedures performed, to attend teaching conferences in the E.R. and to present an informal lecture on a pediatric emergency medicine topic. Prerequisite: PED 601. FA WI SP SU [4 weeks] Kramer.

PED 624 Pediatric Intensive Care Unit. Pediatric intensive care provides an experience in the care of the very sickest hospitalized children. The student is an integral part of a team and will learn (1) the initial evaluation of the patient, (2) organization of care, (3) procedures (arterial catheterization, central line placement) and (4) pediatric resuscitation techniques. Prerequisite: PED 601 and fourth year status. FA WI SP SU [4 weeks] Hayden.

PED 626 Pediatric Nephrology. Students gain experience in the care of children with renal problems in hospitalized and ambulatory patients. Emphasis is on participation on an active consulting service with concentration on normal and abnormal renal functions, electrolyte imbalances, proteinuria, hematuria, hypertension, urinary tract infection and developmental diseases of the kidney. Prerequisite: PED 601. FA WI SP SU [4 weeks] Heiliczzer.

PED 631 Pediatric Radiology. Students observe radiologic procedures and participate in analyses, reviews,

and general radiology conferences. Analysis involves assessment of appropriateness of an examination, detection of pertinent findings, interpretation of findings, and synthesis of interpretation and clinical presentation into reasonable diagnosis. Prerequisite: PED 601. FA WI SP SU [4 weeks] Han.

PED 632 GI/Nutrition. This clerkship will provide a core set of didactic materials and discussions. Emphasis will be on understanding the pathophysiology of, and basic approach to, common clinical problems. The nutrition component will include fundamentals of enteral and total parenteral nutritional management. Students will be expected to perform a literature review of one or more topics. Prerequisite: PED 601. FA WI SP SU [2-4 weeks, possible 2 weeks of GI or 2 weeks of Nutrition] Sandler.

PED 641 Pediatric Allergy/Clinical Immunology. This elective teaches the clinical approach to the problems of allergy, other immune-mediated diseases and immunodeficiency in children and adults. Diagnosis and treatment of outpatients with commonly encountered IgE-mediated diseases (allergic rhinitis, asthma, eczema and urticaria), connective tissue diseases and immunodeficiency syndromes are emphasized. Participating students have primary responsibility for following inpatients admitted by or referred to the allergy/immunology service and reporting to the attending physician-on-service on daily rounds. However, primary emphasis is on Allergy/Immunology Clinic outpatient care. Chart review conferences (weekly) and journal club (biweekly) and research conferences are regularly scheduled. Rotators also learn about skin testing techniques, spirometry and immunological tests performed by the Office of Consolidated Laboratory Services. Prerequisite: PED 601. FA WI SP SU [4-8 weeks] A. Gewurz.

PED 642 Pediatric Hematology/Oncology. This course provides an introduction to the care of children with a variety of hematologic disorders, or malignancies of childhood. Students will attend consultations with radiologists, pathologists, and surgeons involved in the diagnosis of malignant diseases. Ward rounds are made daily for inpatients on the service and consultations. Outpatient clinicals are held five days a week. Prerequisite: PED 601. FA WI SP SU [4 weeks] Green.

PED 646 Pediatric Infectious Diseases. The focus is on clinical and laboratory evaluation of pediatric infections. An active consultation service provides ample opportunity for patient evaluation and follow-up. Correct use of laboratory facilities is stressed. Pathophysiology of infectious diseases, differential diagnosis, and antibiotic use are discussed on daily ward rounds and weekly conferences. Prerequisite: PED 601. FA WI SP SU [4 weeks] Boyer.

PED 647 Pediatric Tropical Medicine. This elective is designed to provide an introduction to tropical medicine where the student will be a valuable and integral part of the team and will (1) gain exposure to pediatrics in the developing world to gain a deeper understanding of the global problems facing children in the 1990's, (2) learn diagnosis and treatment of common tropical diseases such as malaria, tetanus, and measles, (3) be encouraged and

allowed to be involved in patient's total care including diagnostic and therapeutic procedures when appropriate, and (4) be provided the opportunity to develop and carry out research projects applicable to the developing world. Students must arrange for an interview with course director prior to being accepted for this clerkship. Available to only to Rush students who must also obtain approval from the Assistant Dean for Clinical Curriculum. Prerequisite: PED 601, Permission of course director. Locations: Nigeria, Kenya or Swaziland during the months of February, March, April or May. Other locations will be reviewed and approved on an individual basis. [4-8 weeks] Slusher

PED 651 Pediatric Neurology. This fourth year medical student will become acquainted with the broad scope of pediatric neurology with an emphasis on the basic examination of children with neurologic and developmental problems. Basic interpretation of common neuroradiologic studies, as well as basic skills in the neurologic and developmental examinations will be emphasized. Prerequisite: PED 601. FA WI SP SU [4 weeks] Heydemann.

PED 672 Pediatric Respiratory Medicine. The objectives for this clerkship are to expose the medical student to: 1) all facets of clinical practice involving pediatric patients with respiratory disease; 2) routine and infant pulmonary function testing; 3) a pediatric sleep laboratory; and 4) a dynamic setting where clinical research is underway. Experience will be provided in a consultative ambulatory care clinic for patients with asthma, cystic fibrosis and bronchopulmonary dysplasia, as well as patients with disorders of central respiratory control. The student will also participate in the consultative process for hospitalized patients in the intensive care units and on the general pediatric service. Prerequisite: PED 601. FA WI SP SU [4 weeks] Zinman.

PHARMACOLOGY

PHR 501 Medical Pharmacology I. Introduction to the basic concepts which describe drug actions. The autonomic nervous system and related drug actions, neuropharmacology, psychopharmacology, and anesthetic/analgesic pharmacology. Prerequisites: BCH 472, NEU 451, PHY 452. FA (4-1-4) [47 hours] Prancan.

PHR 502 Medical Pharmacology II. Anti-inflammatory, autocoid, cardiovascular, diuretic and respiratory agents, hypoglycemic agents, drugs acting on the blood and blood-forming organs, toxicology. Prerequisite: PHR 501. WI (3-0-3) [29 hours] Prancan.

PHR 503 Medical Pharmacology III. Antibiotics and cancer chemotherapeutic agents. Prerequisite: PHR 502. SP (2-0-2) [23 hours] Prancan.

PHR 521 Laboratory Instrumentation. The course covers the principles and applications of experimental equipment. Instrumentation will include: ultraviolet and visible spectrophotometry, spectrophotofluorometry, thin-layer chromatography, column chromatography, high pressure liquid chromatography, atomic absorption, liquid scintillation spectrometry, isotope use and handling, pH adjustment, sample weighing, melting point determination,

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hematocrit determination, centrifugation, and glassware cleaning. SP (0-6-3) Parkhurst.

PHR 541 Pharmacology. Drug interaction with body tissues, including absorption, distribution, metabolism and excretion is studied. Biochemical and physiologic mechanisms of drug action are discussed. WI (2-0-2) Nora.

PHR 542 Pharmacotherapeutics. The use of drugs in the diagnosis, prevention, and treatment of disease is presented. SP (1 to 6 credits) Nora.

PHR 551 Pharmacokinetics. Basic principles of the dynamics of absorption, distribution, and elimination under normal conditions and of selected disease states are presented. Prerequisite: PHR 503. WI (3-0-3) Nora, Parkhurst.

PHR 590 Special Topics in Pharmacology. The course is designed to allow the student flexibility in independently pursuing a particular area of interest. May be taken for one or more terms. (v-v-v) Staff.

PHR 591 Advanced Topics in Pharmacology. A series of faculty and student presentations and discussions addressing any advanced topic related to pharmacology. FA WI SP (2-0-2) Prancan.

PHR 598 Research in Pharmacology. By special arrangement. (v) Staff.

PHR 599 Independent Study. (v)

PHR 622 Experimental Models in Pharmacology. A laboratory course concerned with the techniques involved in preparing experimental methods and models for research. SP (0-8-4) Brandley.

PHR 691 Pharmacology Seminar. FA WI SP (1-0-1) Staff.

PHR 699 Thesis Research. (v)

PHYSIOLOGY

PHY 451 Physiology I. A comprehensive physiology course which deals with essentially all of the major organ systems except the CNS. Concept formation and problem solving are stressed. Lectures are supplemented by small group discussions and laboratory exercises. Students are expected to discuss assigned study questions in the group discussions. Laboratory exercises are divided between conventional experiments and computer simulations of physiological systems. FA (4-2-5) [64 hours] Levis.

PHY 452 Physiology II. Continuation of PHY451. Prerequisite: PHY 451. WI (5-2-5) [58 hours] Michael.

PHY 502 Introductory Membrane Biophysics. Study of fundamental processes involved in movement of ions across membranes, excitability in nerve and muscle, equivalent circuit analysis, artificial membrane systems, structure of membranes, and active transport processes. (4-0-4) Cohen.

PHY 503 Physiology of Striated Muscle. Topics include fundamentals of excitation-contraction coupling, mechanics of muscle, equivalent circuit analysis, muscle biochemistry, and developmental aspects of nerve and muscle. (4-0-4) Rios.

PHY 514 Functional Neurophysiology. An examination of physiology of neurons and glia, synaptic processes, sensory receptor physiology, spinal cord, cerebellum and motor control, peripheral mechanisms in sensory systems, and higher functions of the nervous system. Relevant neuroanatomical concepts will be included. SP (4-2-4) Staff.

PHY 523 Circuit Theory and Practical Design. A tutorial laboratory course designed to acquaint the student with the principles of design and construction of various electronic equipment commonly encountered in modern physiology. (3-2-4) Staff.

PHY 524 Linear Differential Equations and Transform Methods. Study of first and higher order linear equation, linear algebra techniques, finite difference equations, Fourier series and transforms, Laplace transforms, and applications to solution of differential equations. (4-0-4) Chen.

PHY 525 Linear Systems Analysis. Topics include block diagrams, feedback, frequency domain analysis, noise and its analysis, and partial differential equations and their solution. Prerequisite: PHY524. (4-0-4) Eisenberg.

PHY 555 Physiology of Cellular Homeostasis. Integrated physiological content related to cellular homeostasis/viability in humans. Focus is on those selected aspects of cardiovascular, nervous, muscle, hormonal and reproduction, and gastrointestinal systems that account for regulation of cellular fluid, electrolyte and energy/thermal balances. FA (3-0-3) Zbilut.

PHY 556 Physiology of Cellular Homeostasis II. Integrated physiological content related to cellular homeostasis/viability in humans is presented. Focus is on those selected aspects of pulmonary, cardiovascular and renal systems that account for regulation of cellular fluid, electrolyte and energy/thermal balances. WI (3-0-3) Zbilut.

PHY 590 Special Topics in Physiology. An advanced course dealing with selected topics in physiology. The particular subjects vary from year to year. (v)

PHY 598 Introduction to Research. A tutorial course designed to familiarize students with the literature and techniques applicable to modern physiological research. FA WI SP SU (v-v-v)

PHY 640 Applied Electrophysiology. An advanced laboratory course introducing students to the basic techniques of modern electrophysiology. Prerequisites: PHY 502, 503, 523. (3-6-6) Staff.

PHY 641 Molecular Mechanisms in Control of Ion Permeability. An advanced course dealing with special topics in the molecular control of excitability and laboratory

instruction in voltage clamp techniques. Offered Alt. years by arrangement. Prerequisite: PHY 502. (4-0-4) Cohen, Quandt.

PHY 651 Advanced Topics in Muscle Physiology. Topics include equivalent circuit of skeletal muscle, problems in excitation-contraction coupling, and molecular events in the generation of mechanical force. Prerequisite: PHY 503. (3-0-3) Rios, Eisenberg.

PHY 653 Problems in Synaptic Physiology. A detailed review of current experimental and theoretical problems in transmitter release and activation of postsynaptic receptors. Prerequisites: PHY 451, 503, 514. (4-0-4) Niles.

PHY 655 Sensory Neurophysiology. An advanced tutorial dealing with the function of sensory systems and information processing. Prerequisite: PHY 514. (4-0-4) Hoepfner.

PHY 690 Research Topics in Physiology. With a member of the staff, the student participates in a laboratory-based experience in an area of current research. The level of participation depends on the student's background and will include examination of the literature, a review of the topics being investigated, and opportunities to participate in experimental work. In addition to work in the laboratories, independent experimental or bibliographic projects may be undertaken with the approval of a faculty member. A report is prepared describing the work attempted and accomplished. Prerequisite: PHY 452. SP SU [8 weeks] Staff.

PHY 699 Thesis Research. Postcandidacy research by arrangement with staff. FA WI SP SU (v-v-v)

PHYSICAL MEDICINE AND REHABILITATION

PMR 601 Physical Medicine and Rehabilitation (PM&R). This clerkship will introduce the student to the field of physical medicine and rehabilitation. It includes an introduction to the physical examination of patients with disabilities due to strokes, spinal cord injuries, head trauma, amputations, movement disorders, and arthroplasties, etc. In addition, the student will be expected to observe, understand, and learn what services are provided by the allied health professional staff, and when it is appropriate to prescribe these services. The experience may be obtained at either or both The Center for Rehabilitation at Rush or the Marianjoy Rehabilitation Center. Prerequisite: None (MED 601, PED 601, NEU 601 preferred) [2 - 4 weeks] Nicholas.

PATHOPHYSIOLOGY

PPH 522 Biology of Cancer. Basic concepts of cell biology and biochemistry are introduced with application to the tumor cell. Topics include: mechanisms of carcinogenesis and metastasis, basic and tumor immunology, nutritional aspects of cancer, and hematology. Scientific principles for immunomodulation, radiobiology, and the effect of chemical agents on cell proliferation is included. (4-0-4)

PPH 523A Biological Basis of Clinical Therapeutics I (Obstetrical Model). This module uses a case study approach to identify principles and content in pathophysiology and clinical therapeutics related to the care of the high risk pregnant patient. Co-requisite: PPH 524A. (2-0-2)

PPH 523B Biological Basis of Clinical Therapeutics I (Pediatric Model). This module uses a case study approach to identify principles and content in pathophysiology and clinical therapeutics related to the care of the pediatric patient. Co-requisite: PPH 524B. (2-0-2)

PPH 524A Biological Basis of Clinical Therapeutics II (Obstetrical Model). This module uses a case study approach to identify principles and content in pathophysiology and clinical therapeutics related to the care of the high risk pregnant patient. Co-requisite: PPH 523A. (2-0-2)

PPH 524B Biological Basis of Clinical Therapeutics II (Pediatric Model). This module uses a case study approach to identify principles and content in pathophysiology and clinical therapeutics related to the care of the pediatric patient. Co-requisite: PPH 523B. (2-0-2)

PPH 525 Biological Aspects of Perinatology: Neonate. Biologic aspects of normal and abnormal changes during pregnancy, labor and delivery are studied. The major focus of study is on the transition to extrauterine life. Neonatal pathophysiology is included. Prerequisite: PHY 555, 556. (4-0-4)

PERFUSION TECHNOLOGY

PRF 301 Introduction to Perfusion Technology. An introduction for the student to the operating room environment. Primary focus will be on sterile technique from scrubbing and gowning and gloving to the aseptic handling of fluids and sterile equipment. Also a general orientation to other departments and locations that interact with the field of perfusion technology, such as the cardiac catheterization lab, intensive care units, pharmacy and other laboratories. Lectures and group discussions will also cover personnel interaction, ethical and professional behavior, as well as sterile supplies and inventories. FA (2-0-2) Djuric.

PRF 302 Pathophysiology of Cardiopulmonary Bypass I. The focus will be on how cardiopulmonary bypass directly affects various organ systems. This first in a series will cover the heart and lungs, congenital defects and acquired disease. Attention will be given to understanding cardiac dynamics in normal and disease states as well as interpretation of ECG's. SP (4-0-4) Djuric, Piccione.

PRF 303 Pathophysiology of Cardiopulmonary Bypass II. This second course will focus on other organ systems, such as renal, vascular, central nervous, and examine how they are affected by cardiopulmonary bypass. Lectures will also cover physiological principles of gas exchange in artificial lungs. SU (4-0-4) Djuric, Staff.

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PRF 304 Heart-Lung Machine Fundamentals. This course will introduce the student to hands-on experience with the heart-lung machine. Students will use older as well as current designs of heart-lung machines. Emphasis is on understanding all facets of the complex life support devices. Students will also work with related equipment: heater/coolers, autologous blood salvaging devices, various monitors, etc. WI (3-0-3) Djuric, Staff.

PRF 305 Extracorporeal Circuits. This course will focus on the creation and function of extracorporeal circuits for specific clinical situations. Students will design and build circuits, utilizing appropriate components, based on lectures and readings. The students will try out their designs in the clinical laboratory/classroom. SP (4-0-4) Rizzo.

PRF 311 Junior Seminar I. This course will provide an introduction for the perfusion technology student to the broad spectrum of equipment available for cardiopulmonary bypass. From heart-lung machines and disposable equipment, manufacturer representatives will present their product lines, along with discussion of design and comparative performance evaluations. In addition, students will review historical literature of the development of equipment for cardiopulmonary bypass and discuss them in context of contemporary products. WI (3-0-3) Rizzo, Djuric.

PRF 312 Junior Seminar II. The primary focus of this seminar will be myocardial protection. Students will review selected readings on various techniques of myocardial protection. Topics will range from coronary perfusion to contemporary concepts in cardioplegia. In addition, the pharmacology of cardioplegia will be presented, along with a review of cardioplegia delivery systems. SP (3-0-3) Djuric.

PRF 313 Junior Seminar III. This seminar will be devoted to class reviews of the clinical cases of the past week. Students will present their cases and discuss charting, case management, blood gas/electrolyte analysis, patient charges, etc. SU (3-0-3) Rizzo, Djuric.

PRF 320 Bioinstrumentation. Through readings, lectures and laboratory demonstrations, the students will learn the safe and proper use of monitoring and other electrical equipment related to perfusion technology. Students will also learn to calibrate, set up and prime extracorporeal circuits, cell savers, etc. WI (3-0-3) Djuric.

PRF 331 Anatomy. A systems approach will be used as the organizational framework for this introductory course. Each unit represents content that is fundamental to understanding the structure and function of the human system being studied. FA (4-0-4) Rizzo.

PRF 333 Pharmacology. Students will learn the fundamental principles and concepts of pharmacology. In the broad sense, this course is a study of selective biologic activity of chemical substances on living matter. It presents the principles of drug absorption, distribution and metabolism; the concepts of drug-receptor interaction; and the therapeutic uses and mechanisms of action of prototype drugs in each major drug group, particularly as it

applies to open heart surgical patient before, during and after surgery. (3-0-3)

PRF 381 Perfusion Technology Research. Research studies are analyzed and evaluated relative to an identified clinical problem. Includes concepts, methods and strategies inherent to the research process with a focus on design, internal and external validity, sampling, measurement and ethical issues. (2-0-2) Rizzo.

PRF 401 Perfusion Technology I. This course will be an in-depth review of the anatomy and physiology of cardiopulmonary bypass. Emphasis will be on hematologic disorders and renal, neurologic, respiratory and cardiovascular complications. Cardiac pharmacology will be presented. FA (3-0-3) Djuric, Donnelly.

PRF 402 Perfusion Technology II. This course is a continuation of PRF 401. Topics include reperfusion injury, organ system complications of cardiopulmonary bypass, inflammatory response, pulsatile flow, etc. WI (3-0-3) Djuric.

PRF 403 Perfusion Technology III. This course will focus exclusively on perfusion of the pediatric patient. After reviewing the anatomy of congenital defects and their correction, discussion will focus on equipment selection (oxygenators, filters, cannulae, tubing, etc.). ECMO as respiratory and/or cardiac support will be presented. SP (3-0-3) Djuric.

PRF 411 Senior Seminar I. This seminar will focus on cardiovascular pharmacology. Students will research and present their findings on assigned drugs to the class. Discussion will focus on perfusion related effects. Students will present weekly cases and case problems. FA (3-0-3) Rizzo.

PRF 412 Senior Seminar II. This seminar will focus exclusively on anti-coagulation and coagulation disorders. Topics will range from current methods of monitoring anticoagulation (ACT, HPT, TEG) and their relative benefits to coagulation disorders, their diagnosis and treatment. Students will present weekly cases and case problems. WI (3-0-3) Djuric.

PRF 413 Senior Seminar III. This final seminar will focus on perfusion safety, liability, ethics and other concerns for the graduating student. SP (3-0-3) Djuric.

PRF 431 Clinical Experience I. This summer session course will serve as the student's introduction to his/her clinical role as a perfusionist focusing on the role of first assistant. Duties include equipment selection, assisting during set-up and clean-up, charting and general interaction with other personnel during open heart surgery and related procedures. (8) Staff.

PRF 432, 433, 434 Clinical Experience II, III, IV. Under direct supervision by a Certified Clinical Perfusionist the student will gradually move up from a first assistant to a primary perfusionist with sole responsibility for 50 adult procedures and 10 pediatric procedures. The students will be constantly evaluated by their clinical supervisors. These written evaluations will be discussed with the

program director on a weekly individual basis in order to insure steady competent progress. (8) (8) (8) Staff.

PSYCHOLOGY

PSC 651 Clinical Sleep Disorders. Diagnosis and treatment of sleep and arousal disorders as recognized by the Association of Sleep Disorders Centers. Major diagnostic categories are reviewed in terms of clinical presentation, etiology, laboratory findings, and potential therapies. Lecture and laboratory. Prerequisite: Sleep minicourse or approval of course director. [2-4 weeks] Cartwright.

PSYCHIATRY

PSY 501 Introduction to Psychopathology. A study of the range of psychopathology that will be manifested in clinical situations. By reviewing diagnostic criteria and by studying etiological factors underlying various forms of psychopathology that range from disturbances in cellular and neurotransmitter function through psychological and social stresses, students develop a basic understanding of common psychiatric conditions. Prerequisite: Behavioral Science 453. FA (3) [33 hours] Schrift.

PSY 601 Core Clerkship in Psychiatry. Basic clinical and didactic exposure to the major psychiatric disorders focusing on their diagnosis and management. Emphasis is placed on aspects of psychiatry relevant to the primary practitioner with a holistic approach to patient care recognizing the significant biological, psychological, and social/environmental factors contributing to the patient's illness. Systems concepts of care are presented in an integrated manner through graded, intensive, clinical experiences. Inpatient, settings are used for assignment of patient responsibility. Prerequisite: CCS 502. FA WI SP SU [6 weeks] Schrift.

PSY 602 Psychosomatic Medicine. The relationship between internal and external stress and the development of physical symptomology as well as therapeutic interventions are studied. Adults hospitalized on medical, surgical, obstetric, or pediatric services are studied with supervised diagnostic evaluation and continuing management. The role of the milieu--home, community, and hospital--is emphasized. Special work is done with dialysis patients, transplant patients, patients with malignancies, and those undergoing intensive care. The elective is planned as an experience in all areas, with emphasis depending upon student interest and need.

Drawing patients from a 912 bed tertiary hospital and the 176 bed Johnston R. Bowman Center for the Elderly, this elective exposes the student to a wide variety of psychosomatic areas of medicine. It offers an opportunity to learn about depression in the medically ill, use of psychotropic medication in the medically ill, use of sodium amytal interview, somatization disorder, chronic and psychogenic pain management, organic brain disease, and liaison psychiatry. Additionally, the consultation-liaison service is very active in research. The student works independently under the supervision of a resident with extensive teaching from supervising attending physicians. This elective also offers opportunity for contact with outpatient psychosomatic and psychosexual disorders.

Students are invited to participate in the weekly psychosomatic literature seminar. Prerequisite: PSY 601. FA WI SP SU [4-6 weeks] S. Cavanaugh, Chor.

PSY 603 Child Psychiatry. Students will work with the treatment teams of the child psychiatric inpatient unit, the day school and outpatient services. Students will be assigned specific children to follow under the supervision of the attending child psychiatrist and will participate in treatment groups and team management. Prerequisite: PSY 601. FA WI SP SU [4-6 weeks] M. Johnson.

PSY 604 Adult Psychiatry. The objective is to increase the student's knowledge of various psychiatric disorders and to improve knowledge and skills in drug therapy, individual psychotherapy, family therapy and group therapy. Emphasis is placed on crisis management and brief therapy in inpatient settings. Prerequisite: PSY 601. FA WI SP SU [4-8 weeks] Bagri.

PSY 605 Geriatric Psychiatry. Objectives of this rotation are: to increase the amount of experience in treating elderly patients with psychiatric diagnostic skills and the use of psychotherapy and pharmacotherapy with elderly patients; to learn the psychological changes that accompany the aging process; to become familiar with normal and abnormal states and processes in the elderly. These objectives are accomplished via: 1) readings in the field of geriatric psychiatry, and 2) direct treatment of selected patients with supervision by attending psychiatrists, fellows, and residents on rotation. Prerequisite: PSY 601 FA WI SP SU [4 weeks] Ripeckyj.

PSY 611 Dissociative Disorders. This clerkship will take place on the Dissociative Disorders Unit at Rush North Shore Medical Center. The clerkship will be tailored to the specific needs and interests of the individual students and may focus in either clinical or research areas. The students will follow one to two patients for the period of the rotation and be expected to attend staffings and educational meetings on the unit. Students will be evaluated on the basis of attendance, attitude, and general knowledge of dissociative disorders gained during the rotation. A self-evaluation on the general knowledge component will be supplied at the beginning of the rotation to assist in providing some focus for the study of this area of psychiatry. Interview with course director required before acceptance into the clerkship. Prerequisite: PSY 601 FA WI SP SU [4-6 weeks] Braun, Sachs.

PSY 621 Behavioral Neurology. The student will be able to perform a behavioral neurologic examination in order to diagnose and treat patients with disorders of verbal output: aphasia, agnosia, apraxia, acalculia and agraphia; delirium and dementia; psychiatric manifestations of epilepsy; neuropsychiatric movement disorders; frontal lobe syndrome; amnesic syndromes and limbic system disorders; and cognitive dysfunction in the major psychoses. Selected readings will be assigned. Prerequisite: NEU 451. FA WI SP SU [4 weeks] Schrift.

PSY 683 Clinical Research in Psychiatry. The student is exposed to basic clinical psychiatric research and will be involved with patients with a wide spectrum of psychiatric disorders. Most of the research is based on using medical

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treatment that is investigational. The objective of this clerkship is to become familiar with basic clinical research including use of psychiatric rating scales and basic research design. Prerequisite: PSY 601 FA WI SP SU [4 weeks] Fanelli.

PATHOLOGY

PTH 501 Pathology I. The general concepts of pathology are studied, with an introduction to degeneration, inflammation, immune response, neoplasia and metabolic and toxic pathological processes. Lectures and seminar groups are accompanied by laboratory work in the microscopic anatomy of pathological changes. Prerequisites: ANA 451, 472. FA [127 hours] Templeton.

PTH 502 Pathology II. A basic systemized study of human diseases affecting the various organ systems will be presented in lectures, seminars, and laboratory sessions. Concepts covered in PTH 501 will be stressed and correlated with the special pathology of organ systems and their functional and structural alterations. Prerequisite: PTH 501. WI SP [69 hours] Haber.

PTH 503 Pathology III. The basic fundamentals of laboratory testing will be presented with emphasis placed on interpretation of tests and the appropriateness of test ordering. Students learn to draw blood and will be expected to perform and interpret a few simple, but diagnostically important, laboratory tests such as urinalysis, hemacrit, and blood smear. No examinations are given in this course, but attendance is required. PTH 502. SP [59 hours] Haber, Templeton.

PTH 601 Pathology Clerkship. The primary emphasis is on techniques and procedures used in autopsy pathology performed under the direction of a departmental faculty member. In addition, there is active participation in surgical pathology and departmental conferences. A review of systemic pathology and cytology is provided. Available as a four-week elective only by special arrangement. Prerequisite: MED 601. FA WI SP SU [4-6 weeks] Rush; Dainauskas, Cook County: [4 weeks] Kirshenbaum, Illinois Masonic: [4 weeks] August.

PREVENTIVE MEDICINE

PVM 511, 512, 513 Preventive Medicine I, II, III. A series of courses for first and second year medical students covering epidemiology, biostatistics, public health and community based primary care programs, social issues, occupational health, and other issues in preventive medicine. [28 hours][16 hours][8 hours]

PVM 541 Biostatistics I. A basic introduction to the use of statistics in the health sciences. Topics covered include: descriptive statistics, probability, sampling, estimation, t- and Z-tests, chi-square tests, one-way analysis of variance, and nonparametric statistics. Students will do some statistical computations on the computer. FA (4-0-4) Leurgans, P. Meyer.

PVM 542 Biostatistics II. An extensive introduction to regression, two-way analysis of variance, and analysis of covariance. Regression topics covered include: dummy

variable, transformations, stepwise regression, and residual analysis. Most of the analysis will be done using computer programs. Prerequisite: PVM 541. WI (3-0-3) Leurgans.

PVM 543 Biostatistics III. An introduction to multivariate statistical techniques, including factor analysis, discriminant analysis, multivariate analysis of variance, loglinear analysis, and cluster analysis. Extensive use will be made of computer programs. Prerequisite: PVM 542. SP (3-0-3) P. Meyer.

PVM 599 Independent Study. Advanced topics by arrangement with instructor. (v)

PVM 601 Primary Care. Ambulatory care in a physician's office is the basis for this clerkship. Emphasis is on preventive measures and follow-up care. By individual arrangement, experience is available in a variety of settings, such as group practice, inner city clinics, or rural practice. Experience in foreign countries can also be arranged. Prerequisite: CCS 502. FA WI SP SU [4-12 weeks] Schoenberger.

PVM 603 Occupational Medicine. This experience provides a combination of didactic and practical work in approaching the problems of health maintenance and environmental hazards in diverse industrial settings. Prerequisite: MED 601. FA WI SP SU [8 weeks] Kassriel.

PVM 604 Field Experience in Epidemiology. Emphasis is placed on the collection and analysis of data obtained in epidemiologic studies. The student may select a project and is expected to become familiar with field epidemiologic techniques and tools, including questionnaire design and interviewing. Primary focus is on studies of cardiovascular disease, with special emphasis on the control of hypertension and prevention of cardiac disease. Prerequisite: CCS 502. FA WI SP SU [12 weeks] Schoenberger.

PVM 605 Research Studies in Health Care Delivery. Under supervision, the student undertakes research on problems in health care delivery. The models available in the Medical Center are utilized primarily, but other systems may be studied by arrangement. Such areas as health evaluation programs, the use of paramedical personnel, medical audit and emergency room care are available. Prerequisite: CCS 502. FA WI SP SU [8 weeks] Schoenberger.

RADIOLOGY

RAD 601 Diagnostic Radiology. Basic radiologic principles are demonstrated and the role of diagnostic radiology as a clinical setting for patient care and medical and surgical specialty consultations is emphasized. Students prepare one case for the teaching file and gives one oral presentation. Students have assigned readings to complete, teaching tapes to review, and are tested by a written final examination. There is a special lecture series designed specifically for the students, with lectures and unknown cases, presented by the diagnostic radiology attending staff and residents. Students are also urged to attend the two daily departmental teaching conferences. A minimum of four students any four week rotation. Approval

of course director required to drop course within eight weeks of start of rotation. FA WI SP SU [4 weeks] Rush: Boles (not in June, July, November, December or January), Illinois Masonic: Kirschenbaum (not in July).

RAD 606 Nuclear Medicine. All facets of the disciplines of nuclear medicine are studied, with particular emphasis on radionuclide scanning of organ systems for diagnostic and research purposes. Emphasis is on pathophysiologic correlation and case study. Literature review and individual topics are encouraged to provide in-depth study in the broad field of nuclear medicine. FA WI SP SU [2-4 weeks] Fordham.

RAD 611 Interventional Radiology. This clinical clerkship exposes the student to interventional radiology with emphasis on patient care. Both non-vascular as well as vascular interventional examinations are performed on both inpatients and outpatients. Students will have assigned readings and will be able to attend lectures given by the diagnostic radiology attending staff and residents included in RAD 601. Available to Rush Medical College students only. Not offered in June, July or December. Prerequisite: RAD 601. FA WI SP SU [4 weeks] Matalon.

RAD 612 Correlative Imaging. This clerkship exposes the student to ultrasound, computed tomography and magnetic resonance imaging with emphasis on correlation of radiologic findings. Students will be assigned reading and spend time in each of the various imaging sections in the radiology department working with attending physicians and residents. Available to Rush Medical College students only. Not offered in June, July or December. Prerequisite: RAD 601. FA WI SP SU [4 weeks] Freimanis.

RAD 621 Radiation Oncology. The student will participate in the normal activities of the department including consultations, treatment planning, and follow-up care of cancer patients. Students are assigned to two different services allowing exposure to different cancer sites. FA WI SP SU [2-4 weeks] Sharma.

SPEECH AND HEARING SCIENCES

SHS 501 Audiologic Methods for Speech-Language Pathologists. This course introduces methods for basic audiologic assessment of adults and children for use by speech-language pathologists. (1)

SHS 502 Speech-Language Pathology Methods for Audiologists. This course introduces methods for speech-language assessment of adults and children for use by audiologists. (1)

SHS 503 Hearing Science. This course considers the normal processes in hearing as well as theories of hearing. Basic physical concepts and perceptual aspects of sound are presented. This course may be offered during academic years when SHS 501, 502 are not available. (3-0-3)

SHS 504 Speech Science. Speech Science examines the physiology of speech production, the acoustic characteristics of speech, and the processes by which

listeners perceive speech. The dialectal and/or cultural characteristics of normal speech and the acoustic and perceptual characteristics of abnormal speech are also addressed. This course includes lectures, class discussions, and laboratory work. (3)

SHS 505 Audiology I. Students develop skills in basic audiological methods for adults and children, including puretone testing, speech audiometry, masking, and immittance testing. Overview of medical considerations, tuning fork tests, special tests, hearing conservation, and hearing aids. FA (2-0-2)

SHS 506 Audiology II. A survey of audiologic tests developed to provide differential diagnosis of auditory pathology. Course content will be applied to students' practicum experience. WI (3-0-3)

SHS 507 Neurological Bases of Speech, Hearing, and Language. Central and peripheral nervous system structures which form the neurologic bases for speech, hearing and language are presented. FA (3-0-3)

SHS 508 Clinical Methods in Communication Disorders. This course introduces basic clinical methods for speech-language pathologists and audiologists, including principles of behavior management, planning objectives, outcome measures, multicultural issues, discharge criteria and other related clinical topics. (2)

SHS 510 Professional Issues in Communication Disorders. This course provides an introduction to professional issues for speech-language pathologists and audiologists. Topics include professional ethics, multicultural issues, teambuilding, reimbursements, risk management, prevention, sexual harassment and other professional areas. (3)

SHS 511, 512, 513, 514, 515 Speech-Language Pathology Practicum I, II, III, IV, V. Supervised clinical experience with patients presenting speech, language, voice, fluency, or swallowing impairments. Students develop evaluative, therapeutic, counseling, and report-writing skills. The relationship of speech-language pathology to other health care professions is examined. (v-v-v)

SHS 516, 517, 518, 519, 520 Audiology Practicum I, II, III, IV, V. Supervised clinical experience with patients displaying various hearing impairments. Students develop skills in diagnostic evaluation, obtaining case histories, counseling, and treatment techniques for pediatric through geriatric patients. The relationship of audiology to other health care professions is examined. (v-v-v)

SHS 522 Language Disorders in Children. An examination of normal and abnormal language development. Consideration is given to theories of language learning, prerequisites to symbolic communication, normal acquisitions, language analysis procedures and etiological variables. Methods of language assessment, treatment models, and therapeutic procedures are studied. SU (3-0-3)

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SHS 523 Sign Language. This introduction is designed to develop sign language skills to a beginning level for both expressive and receptive vocabulary. SU (2-0-2)

SHS 524 Fluency, Dysfluency, and Stuttering. Child and adult fluency disorders will be studied. Students will learn to describe pertinent characteristics of speech fluency, identify the presence of a clinically significant fluency problem, and determine etiologic and maintaining factors. Appropriate management strategies also will be considered. WI (3-0-3)

SHS 526 Industrial Audiology. An examination of hearing conservation programs in industry and the current regulations governing them. FA (2-0-2)

SHS 528 Audiologic Assessment. This course studies behavioral tests of the auditory system that provide a differential diagnosis of auditory function. This course is taken in conjunction with Clinical Methods in Audiology. (4)

SHS 529 Clinical Methods in Audiology. This course presents audiologic implementation of clinical audiologic assessment procedures. This course is taken in conjunction with audiologic assessment. (1)

SHS 531 Amplification I. This course provides a brief history of amplification as well as a discussion of the variety of hearing aids available. Topics include theory and practical applications in earmold acoustics, design, and modifications; selection techniques; real ear methods; electroacoustic analysis; and fitting and verification procedures. Students will complete earmold impressions and modifications, probe microphone measurements, electroacoustic analyses, and hearing aid troubleshooting. (3)

SHS 532 Amplification II. This course expands upon basic amplification technology and hearing aid fitting techniques presented in Amplification I. Emphasis is on advanced concepts and practices as well as current research and trends. (4)

SHS 533 Adult Rehabilitative Audiology. An examination of adult aural rehabilitation. Visual, auditory, and bi-sensory stimuli in communication are considered along with assessing communicative function, auditory training, speechreading, amplification, assistive listening devices, cochlear implants and the psychosocial aspects of hearing impairment. The geriatric population and the working-age adult will be considered as separate rehabilitative challenges. SP (4)

SHS 534 Pediatric Rehabilitative Audiology. An examination of the strategies involved in the management of hearing impaired and deaf children. Topics discussed include parent counseling, auditory training, speech and language training and educational opportunities. Various educational models will be covered. The audiologist's role in case management will be discussed. SU (3-v-3)

SHS 535 Anatomy and Physiology of the Auditory System. This course includes embryologic development of the auditory and vestibular systems as well as

anatomy/physiology of the outer, middle and inner ear and central auditory pathways. Physiology of the vestibular system and theories of hearing are included. (3)

SHS 536 Auditory System Anatomy Lab. This laboratory course examines the structures important for hearing through various activities which may include cadavers, models, specimens, computer images, and slides. This course is taken in conjunction with Anatomy and Physiology of the Auditory System. (1)

SHS 537 Anatomy and Physiology of the Speech System. This course includes embryologic development of the speech mechanism as well as anatomy and physiology of systems for respiration, phonation, and articulation. (3)

SHS 538 Speech System Anatomy Lab. This laboratory course examines the structures important for speech through various activities which may include cadavers, models, specimens, computer images, and slides. The course is taken in conjunction with Anatomy and Physiology of the Speech System. (1)

SHS 542 Electronystagmography. Anatomy and physiology of the vestibular and ocular motor systems will be reviewed. Disorders of patients presenting vertiginous symptoms will be discussed with emphasis on technique and interpretation of ENG findings. Acceleration measurements will be introduced. SU (3-0-3)

SHS 543 Electrophysiologic Assessment of the Auditory System. Reviews the principles and practices of electrophysiologic testing with emphasis on the auditory brain-stem response. WI (4-v-4)

SHS 544 Pediatric Audiology. This course looks at the normal development of auditory behaviors and examines the impact of hearing loss on speech/language development. Procedures for testing hearing in children are presented, including consideration of screening procedures and issues. Hearing aid selection and fitting for pediatric patients is also included. SP (3-0-3)

SHS 548 Advanced Electrophysiologic Assessment. A detailed examination of specialized clinical evoked potentials, including electrocochleography, the frequency following response, middle latency response, P300, visual and somatosensory responses and otoacoustic emissions. Special applications of standard AEP procedures will be covered. (2-1-3)

SHS 550 Electronystagmography Laboratory. A review of basic technique and practical considerations for performing ENG. SU (0-1-1)

SHS 551 Diagnostic Methods in Speech-Language Pathology. This course will focus on concepts in educational and psychological testing and measurement. General aspects of the diagnostic evaluation will also be presented. SP (3-0-3)

SHS 553 Instrumentation for Hearing and Speech. An introduction to instrumentation used in the measurement and treatment of speech and hearing

processes. Concepts related to the evaluation of instruments are presented. Personal computers and their applications are reviewed. Clinical and research applications are emphasized. WI (2-1-3)

SHS 554 Instrumentation in Audiology. This course will provide an introduction to instrumentation used in the measurement of hearing processes. Personal computers and their applications are examined. Calibration and recordkeeping requirements will be examined for basic and advanced instrumentation used in audiology. (3)

SHS 555 Instrumentation in Speech-Language Pathology. This course will provide an introduction to instrumentation used in the evaluation and management of speech and language disorders. Topics include measurement of airflow/volume, fundamental frequency, intensity, and nasality. Students will gain experience with laryngeal imaging, acoustic and aerodynamic assessment, and speech spectrograms. (3)

SHS 556 Dysphagia I. This course includes a review of normal anatomy and physiology of deglutition. Topics include pre-swallow assessment, as well as non-instrumental and instrumental examinations with emphasis on videofluoroscopic swallow study procedure and analysis. Diagnosis, clinical decision making and follow-up procedures are included. (2)

SHS 557 Dysphagia II. This course emphasizes advanced diagnostic and therapeutic techniques related to swallowing disorders. Special populations including pediatrics, geriatrics and patients with degenerative neurological conditions are discussed. (2)

SHS 561 Articulation Disorders. The focus of this course is on normal and abnormal aspects of speech. Consideration is given to phonetic transcriptions, theories of and prerequisites to speech development, phonological analysis procedures and normal acquisition. Etiological factors related to abnormal articulation are examined. Articulation assessment strategies, treatment models, cross-cultural issues and remediation procedures are studied. FA (4-0-4)

SHS 562 Craniofacial Anomalies. An overview of the natural history of cleft palate and other craniofacial anomalies characterized by specific speech problems. The emphasis will be on the development of the multidisciplinary team, speech disorders secondary to these craniofacial anomalies, history of previous care and treatment of persons with these disorders, update on recent research, new treatment developments, and approaches to diagnostic and therapeutic speech intervention. Observation of diagnostic evaluations and treatment planning by a multidisciplinary craniofacial team is included as part of the curriculum. SU (3-0-3)

SHS 563 Voice Disorders. The assessment and management of voice disorders. Students will acquire skills in identifying various pathologies, forming hypotheses as to etiologic and maintaining factors and implementing management strategies. The contribution of otolaryngology, neurology, and psychiatry in patient management will also be reviewed. Evaluation and

management of patients following laryngeal surgery, including laryngectomy, will be covered. Prerequisites: SHS 507, 545 SU (4-0-4)

SHS 564 Aphasia. Adult onset neurogenic language disorders are examined with emphasis on pathophysiology, symptomatology, assessment, diagnosis, treatment, and the role of counseling. Theoretical models and past and current controversies will be included. WI (4-0-4)

SHS 565 Motor Speech Disorders. This course will focus on identification and management of speech disorders secondary to central or peripheral nervous system damage. Students will acquire skills to conduct and interpret a complete motor speech exam, formal tests of dysarthrias and apraxia of speech, and will learn to manage various types of dysarthrias, apraxia of speech as well as childhood motor speech disabilities. Issues of augmentative communication will also be addressed. This course includes lectures, class discussions, a class project, and field trips. (4)

SHS 566 Pathophysiology of the Auditory System. This course will examine various ear diseases and other pathologies as they affect the auditory system. SU (3-0-3)

SHS 567 Pathophysiological Mechanisms of Speech-Language Disorders. The foundations for understanding the diseases and illnesses accompanying speech, language, and other cognitive disorders are presented. Alterations in cell function and growth, oxygenation, endocrine function, metabolism, and neural function are reviewed. Topics include infection, immunity, blood flow, respiration, thyroid disorders, diabetes mellitus, and acute disorders of brain function. (3)

SHS 568 Cognitive Disorders. Communication and cognition in normal adults and the influences of aging and acquired neurological impairments on these behaviors. Etiologies and characteristics of adult communication disorders associated with dementia, agnosia, injury to the non-dominant cerebral hemisphere, traumatic brain assessment and management of communication disorders demonstrated by these populations are reviewed. FA (3-0-3)

SHS 575 Issues in Counseling. The major focus is on understanding the process of the helping relationship. In addition, skills and competencies that interact to influence effectiveness as a communicator will be developed. Knowledge of selected counseling theory as it integrates into practice will be acquired. WI (3-0-3)

SHS 581 Research Methods in Communication Disorders. The development of skills in understanding and critiquing research reports is emphasized. Principles and criteria for evaluating research, including statistical analyses and issues of validity are studied. Consideration is given to both group and single subject research designs. (4)

SHS 582 Introduction to Research in Communication Disorders. The development of skills in understanding and critiquing research reports is emphasized. Principles of the scientific method and criteria for evaluating research

Course Descriptions

are studied. Consideration is given to both group and single subject research designs. (4-0-4)

SHS 585 Professional Issues I. This course provides an introduction to professional conduct and reviews student and professional issues such as scope of practice, ethics, supervision, TQM, conflict management. FA (1-0-1)

SHS 586 Professional Issues II. Issues relating to preparation for the paid professional experience are discussed, including resume writing, interviewing techniques, career planning, licensure certification and accreditation. WI (1-0-1)

SHS 589 Research Practicum. The development of practical research skill through involvement in a research project. Research methods such as data collection, data analysis, and report writing are emphasized. FA (1-2-3)

SHS 590 External Practicum in Speech Pathology. Students are placed at external practicum sites at Rush network hospitals and/or other cooperating institutions. (v-v-v)

SHS 591 Advanced Clinical Training. Advanced training in speech-language pathology or audiology. (v-v-v)

SHS 595 External Practicum in Audiology. Students are placed at external practicum sites at Rush network hospitals and/or other cooperating institutions. (v-v-v)

SHS 597 Case Presentation. Students formally present an interesting clinical case with which they have been involved. Each student works with a supervising faculty member in preparing the presentation. (0-1-1)

SHS 598 Thesis. Under the guidance and direction of a faculty member and committee, the student originates, proposes, and executes an experiment. These projects must reflect a high degree of scholarship. (v-v-v)

SHS 599 Independent Study. Students pursue in depth an area of their choosing under the direction of a faculty member. (v-v-v)

SURGERY

SUR 601 Core Clerkship in Surgery. consists of an eight week general surgery component in the M3 year, where assigned, and four weeks of surgical specialty selective(s) in the M4 year at Rush. The principles of preoperative and postoperative care, diagnosis of surgical disease, indications for surgery, recognition and response to surgical emergencies, and the physiological principles of surgery are stressed through the case study method. Students will be involved in the care of approximately three patients per week. Technical experience is provided in the operating rooms and dog lab. Lectures and conferences provide additional direct contact with faculty. FA WI SP SU [12 weeks] Millikan.

SUR 604 Advanced Surgery. Under supervision, the student assumes many of the duties and responsibilities of a resident physician. This includes responsibility for pre-operative and post-operative care, participation in surgery,

and rotating on-call service. The work is primarily with hospitalized patients, with opportunity for ambulatory and elective surgery. Independent library investigative projects are assigned. Prerequisites: SUR 601, MED 601, PED 601. FA WI SP SU [4 weeks] Millikan.

SUR 605 Anesthesiology. The program enables medical students to learn airway management; recognize circulatory inadequacy and initiate support of the failing circulation; induce topical and infiltrative anesthesia safely; understand the actions and interactions of depressant and stimulant drugs commonly encountered or used by anesthesiologists; and participate in pre-operative evaluation preparations of surgical and obstetric patients. Prerequisite: MED 601, SUR 601. FA WI SP SU [4 weeks] Rush; Stark; Illinois Masonic; Czinn.

SUR 606 Transplantation. The clinical aspects of transplantation, including donor and recipient surgery and preoperative and postoperative care are studied. The student participates in organ preservation as well. Seminars on the fundamental and clinical aspects of transplant immunology are held. Prerequisite: SUR 601. FA WI SP SU [4-8 weeks] Williams.

SUR 608 Trauma/Critical Care Surgery. The student is involved in initial resuscitation, operative procedures, critical-care management, discharge planning and outpatient follow-up. The student functions at an extern level and is supervised by the trauma, senior residents, fellow and attending staff. The student is encouraged to participate actively in all ED, OR and ICU procedures including peritoneal lavage, chest tube insertion, pulmonary artery catheter insertion, central and arterial line placement. The student sees patients in the Trauma Outpatient Treatment Center three days a week for follow-up care. Prerequisite: senior standing. [4 weeks] Illinois Masonic; Fantus.

This rotation is designed to provide the fourth year medical student with an in-depth clinical experience in the care of injured patients. Critical decision making and surgical training are the key elements taught during resuscitation, operative management and the critical care phase. The student will follow patients from the ambulance to their discharge home. Multi-level supervision and teaching is available from attending physicians and residents. Prerequisites: SUR 601, senior standing. [4 weeks] Cook County; Fildes.

SUR 611 Cardiovascular Surgery. This course emphasizes the clinical diagnosis and surgical management of adult and pediatric cardiac disorders. Pre-operative evaluation including review of cardiac catheterization data, intra operative-management and post-operative care are discussed at conferences and in the operating room. Indications for surgery, preoperative evaluation and postoperative care are discussed at patient rounds, in conferences, and on an individualized basis. Prerequisite: SUR 601, 605. FA WI SP SU [4 weeks] Piccione.

SUR 612 Surgical Intensive Therapy. This rotation exposes the experienced student to comprehensive management of critically ill surgical patients. Application of life support techniques including vaso-active drugs,

mechanical aids to circulation, pacing, counter-shock, and respiratory therapy are taught. Pathophysiologic discussion and integration with cardiopulmonary analysis of data obtained from invasive monitoring are emphasized. Radiologic, medical, and surgical aspects of critical care medicine are also incorporated. Students will attempt to function as sub-interns with direct patient responsibilities. Prerequisite: MED 601, SUR 601, SUR 605. FA WI SP SU (4 weeks) Rothenberg.

SUR 613 Peripheral Vascular Surgery. This course emphasizes the clinical non-invasive laboratory and radiologic diagnosis of peripheral vascular disorders considered for surgical management. Indications for surgery, pre-operative evaluation and post-operative care are discussed at patient rounds, in conferences and in the operating room. Prerequisite: SUR 601, SUR 605. FA WI SP SU (4 weeks) DeValle.

SUR 616 Plastic and Reconstructive Surgery.

The Department of Plastic Surgery welcomes third and fourth year medical students to participate in this service. The primary goal of the department in the relationship to the students is to provide an introduction to the subspecialty of plastic and reconstructive surgery in as many of its various elements and diverse applications as possible. Plastic surgery covers a broad array of surgical/medical problems including wound healing; burns, both acute and long-term care; congenital anomalies such as cleft lip and palate and other craniofacial defects; breast surgery including breast reduction, augmentation, and reconstruction following mastectomy; microsurgical procedures for a free flap transfer, nerve repair, and other means of tissue transposition; hand surgery, ranging from acute industrial accidents to long-term rehabilitation for neuromuscular problems; care of facial fractures, both acute and delayed repair; care for trunk and extremity problems, relating both to trauma and tumor extirpation; and aesthetic surgery of the face, extremities and trunk, known best in the lay press as cosmetic surgery.

During a student's experience on the plastic surgery service, he/she might well participate in any one of several problems relating to the above named categories. While it is the primary goal of the service to offer the student a broad overview to the specialty, it is also intended that each student be allowed to investigate one or more items of interest in some greater depth. The student's participation includes daily ward rounds, assisting in the operating room, and conferences held by the service. This participation comes in various forms ranging from the practical aspects of learning proper techniques for dressing changes, learning rudimentary suture techniques, on to the more complex issues of patient analysis and surgical judgement and decision-making processes. Each student is given a degree of responsibility appropriate to his/her experience, level of training, and personal initiative. Personal inquiries from students are welcomed not only by the department chairman, but also by the course director and each member of the plastic surgery attending and resident staff. Prerequisite: SUR 601. FA WI SP SU [4-8 weeks] Schafer.

SUR 621 Pediatric Cardiac Surgery. This course addresses the clinical diagnosis and operative management of pediatric cardiac disorders. Preoperative evaluation

including the review of cardiac catheterization data, intraoperative techniques and postoperative management are discussed. The course includes bedside teaching, observing pediatric cardiac operations and follow-up of patients in the ICU and on the floor. Prerequisites: SUR 601, SUR 605. FA WI SP SU [4 weeks] Amato.

SUR 626 Principles of Urology. This clerkship provides further experience in the diagnosis and management of urological problems as a supplement to the basic clerkship in surgery. Prerequisite: SUR 601. FA WI SP SU [4 weeks] McKiel.

SUR 627 Genitourinary Neoplasia. This course is designed to present the basic concepts of neoplasia, using the genitourinary neoplasms as models. The student actively participates in the management of both hospitalized and ambulatory patients. Multidisciplinary seminars and individual projects are available. Course director approval required. Prerequisite: SUR 601. FA WI SP SU [4 weeks] Flanagan.

SUR 641 Orthopedic Sports Medicine. The basic principles of physical examination, non-operative and operative treatment and rehabilitation of sports-related injuries are emphasized. Clinical exposure includes participation in office hours, patient evaluation and hospital care, high school game and sports event coverage with orthopedic house officers and staff attendings, experience in intercollegiate field house training rooms, and the evaluation of the acutely injured athlete. Diagnostic and surgical arthroscopy of the knee and shoulder, knee ligament reconstruction and shoulder reconstructive surgery are emphasized. A reading list is provided. Course director approval required. Prerequisite: SUR 601. FA WI SP SU [4-6 weeks] Bach.

SUR 651 Orthopedics. The primary emphasis is on examination, diagnosis, pathology, and treatment of conditions affecting the musculoskeletal system. The student participates in clinical work in physicians' offices and hospital facilities such as the cast room and the operating room. Prerequisite: SUR 601. FA WI SP SU [4 weeks] Bush-Joseph.

SUR 652 Orthopedic Research. Research and bioengineering as applied to the musculoskeletal system are studied with particular emphasis on the pathomechanics of human gait, mechanics of lifting, experimental use of implants in animals and their effects on biologic systems. Prerequisite: SUR 601. FA WI SP SU [8 weeks] Andriacchi.

SUR 653 Head and Neck Surgery. This elective will provide a structured format for learning about diagnosis and treatment of all major head and neck tumors combined with a research project. The student will be exposed to outpatients in all phases of treatment. They will be exposed to surgical procedures with a heavy emphasis on surgical anatomy. In addition, the student will be involved in a research project. At the end of the rotation the student will be tested in head and neck anatomy and on the natural history evaluation and treatment of all major head and neck tumors. This will include thyroid, salivary gland, oral, pharyngeal, laryngeal and skin tumors. Principles of head

Course Descriptions

and neck reconstruction will be introduced. This rotation is available only to Rush Medical College students. Prerequisite: SUR 601. FA WI SP SU [4 weeks] Illinois Masonic: M. Friedman.

SUR 656 Neurosurgery. This clinical clerkship expands upon and demonstrates the practical application of neurological sciences. The emphasis is on diagnosis and pathophysiological correlation of diseases of the nervous system. Practical application of neurosurgical management and diagnosis as well as the treatment of neurosurgical emergencies is studied in detail. Prerequisite: SUR 601. FA WI SP SU [4 weeks] Whisler.

SUR 657 Principles of Ophthalmic Examination. The purpose of this course is to acquaint students with the surgical subspecialty of ophthalmology. They will learn basic ophthalmic terminology, history and examination principle, attend daily rounds and other didactic sessions, and observe surgery. It is intended that students will not only learn techniques of examination which will be useful in their own medical practices, but will also understand the capabilities and limits of the ophthalmologist in order to make better use of ophthalmic consultations. FA WI SP SU [2 weeks] T. Deutsch.

SUR 658 Research in Ophthalmology. Students with a special interest in ophthalmic research may take an elective of variable duration, but at least eight weeks. Students will be introduced to techniques of research including problem identification, study design, research methods, data collection, statistical analysis literature review, and manuscript production. It is not necessary for a project to be completed within the short period of the elective, nor is it guaranteed that a given research project will culminate in a publication. Research projects are available in both basic and clinical sciences. Prior approval of course director required. FA WI SP SU [8 weeks] T. Deutsch.

SUR 659 Otolaryngology. Clinical experience is provided in the diagnosis and management of patients with diseases of the ear, nose, throat, head, and neck. Office practice in addition to the care of hospitalized patients provide the basis for clinical instruction, with emphasis on case study and proper use of instruments. Departmental pathology, radiology, and otology conferences and journal club are included. Course director approval required. Prerequisite: SUR 601. FA WI SP SU [4 weeks] Caldarelli.

SUR 661 Surgical Oncology. Concentrated experience in the surgical diagnosis and management of patients with tumors is provided. Correlation of surgical problems with anatomic and pathological physiology is stressed, including examination of gross and microscopic tissue. Attendance at the tumor clinic, tumor conference, and head and neck tumor conference is required. Prerequisite: SUR 601. FA WI SP SU [4-6 weeks] Staren.

SUR 662 Combined Oncology. This multidisciplinary senior elective (surgery, medicine and ob-gyn radiation) will provide the student with exposure to the concepts and practice of oncology through didactic instruction and "hands on" clinical experience in the care of cancer

patients. The student will actively participate in the care of patients as a member of the oncology health care team. The rotation will attempt to provide an in-depth understanding of the following concepts and procedures: tumor biology and the epidemiology of cancer, management of specific cancers, i.e., lung, breast, colon, hematologic, gynecologic, etc., outpatient techniques for early diagnosis, i.e., fine needle aspiration of breast lesions, etc., colposcopic evaluation of lower female genital tract including directed biopsies and endocervical and endometrial biopsies, outpatient therapeutic modalities including the use of laser, cryotherapy and LEEP (loop electrosurgical excision procedures), etc., radiologic and other imaging techniques, pre-treatment staging of cancer, surgical approaches to treatment of cancer, radiotherapeutic approaches to cancer (brachytherapy, teletherapy, simulation and dosimetry techniques) chemotherapeutic approaches to cancer and the prevention, identification and treatment of recurrences. Prerequisites: MED 601, SUR 601, OBG 601, Permission of course director. FA WI SP SU [4-6 weeks] Illinois Masonic: Pilch.

SUR 665 Colon and Rectal Surgery. Close one-on-one instruction between the student and physician in an apprentice-teacher relationship. The student accompanies the physician in all outpatient clinic office hours, as well as surgical procedures. This involves spending approximately 60 hours in a clinic environment, assisting in approximately 50 surgical and endoscopic procedures and daily in-hospital rounds. Prerequisite: SUR 601, Permission of course director. FA WI SP SU [4] Saclarides.

SUR 670 Communication Disorders. The course includes introduction to speech, language, and hearing problems and provides observation and interaction with patients demonstrating aphasia, dysarthria, stuttering, cleft palate, and developmental speech abnormalities. Students will obtain experience in interpretation of basic hearing assessment and in using results of more advanced tests to differentiate among types of hearing loss. Course director approval required. FA WI SP SU [2 weeks] Staff.

SUR 671 Thoracic Surgery. The diagnosis, and operative and postoperative care of patients with pulmonary and esophageal disorders are studied in both hospitalized and ambulatory patients. In addition, students assist in patient care, and topics are assigned for discussion. Prerequisite: SUR 601. FA WI SP SU [4 weeks] Faber.

ENDOWED CHAIRS

Endowed Chairs at Rush-Presbyterian-St. Luke's Medical Center

Endowment provides the margin for excellence at Rush University as generous and far-sighted giving helps build leadership among the faculties. Commitments for endowed chairs provide the donor with the satisfaction of enabling Rush faculty to advance education and research in the conquest of disease, and make it possible for Rush University to continue to attract scientists and educators of the highest quality. There are now 71 endowed chairs at the Medical Center.

Chairs currently occupied are indicated by holder's name and title. The endowed Chairs, in order of establishment, are:

Jean Schweppe Armour Chair of Neurology

This, the first endowed Chair at a private hospital in the country, was established in 1963 as a memorial to Jean Schweppe Armour by Trustee A. Watson Armour III, other members of the Armour family, and by her friends as a tribute to her leadership as a volunteer for the Medical Center and as a member of its Woman's Board. A generous gift of Trustee A. Watson Armour III in 1985 brought the Chair up to current levels.

Holder: Jacob H. Fox, M.D.

*The Jean Schweppe Armour Professor of Neurology
Chairman, Department of Neurological Sciences
Co-Director, Rush Alzheimer's Disease Center
Co-Director, Rush Neuroscience Institute*

Maynard M. Cohen, M.D., Ph.D.

The Jean Schweppe Armour Professor of Neurology Emeritus

John W. and Helen H. Watzek Chair of Biochemistry

Established in 1965 by John W. Watzek, Jr., an industrialist, to honor the memory of his parents. The decision grew out of a relationship with the Medical Center and with his physician, the late Richard B. Capps, M.D.

Holder: Klaus E. Kuettner, Ph.D.

*The John W. and Helen H. Watzek Professor of Biochemistry
Professor of Orthopedic Surgery
Chairman, Department of Biochemistry
Co-Director, Rush Arthritis and Orthopedic Institute*

Harriet Blair Borland Chair of Pathology

Established in 1968 by Chauncey B. Borland, a Trustee of Rush-Presbyterian-St. Luke's Medical Center for many years, in memory of his mother who shared his interest in clinical pathology and supported the same interests during her lifetime.

Holder: Meryl H. Haber, M.D.

*The Harriet Blair Borland Professor of Pathology
Chairman, Department of Pathology*

Richard B. Capps, M.D., Chair of Hepatology

Established in 1968 by friends and patients in recognition of the contributions of Richard B. Capps, M.D. to medicine, particularly his pioneering research in the area of hepatitis. The Chair was completed in 1984 with a bequest of Mrs. Richard B. Capps.

Josephine Dyrenforth Chair of Gastroenterology

Established in 1968 by a bequest of Mrs. Josephine Dyrenforth in appreciation of the care given her husband, Arthur, a well-known Chicago attorney.

Holder: Seymour M. Sabesin, M.D.

*The Josephine Dyrenforth Professor of Gastroenterology
Director, Section of Digestive Diseases*

Woman's Board Chair of Pediatrics

Established in 1968 by the Woman's Board of Rush-Presbyterian-St. Luke's Medical Center as the first endowed chair of pediatrics at any hospital in the nation and the first major endowment by the Woman's Board.

Holder: Samuel P. Gotoff, M.D.

*The Woman's Board Professor of Pediatrics
Chairman, Department of Pediatrics*

Joseph R. Christian, M.D.

The Woman's Board Professor of Pediatrics Emeritus

**Willard L. Wood, M.D.,
Chair of Rheumatology**

Established in 1969 through a bequest of the late Charles S. Pillsbury, his family, and other grateful patients of Willard L. Wood, M.D. graduated from Rush Medical College and, was a physician and a Rush University faculty member served for over 55 years.

Holder: Thomas J. Schnitzer, M.D., Ph.D.

*The Willard L. Wood, M.D. Professor of Rheumatology
Director, Sections of Rheumatology and Geriatrics
Co-Director, Rush Arthritis and Orthopedic Institute
Co-Director, Rush Institute on Aging*

**Elodia Kehm
Chair of Hematology**

Established in 1969 by a bequest honoring Elodia Kehm, the widow of the owner of Kehm Construction, who died of cancer in 1932.

Holder: Stephanie A. Gregory, M.D.

*The Elodia Kehm Professor of Hematology
Director, Sections of Hematology
Co-Director, The Lymphoma Center, Rush Cancer Institute*

William H. Knospe, M.D.
The Elodia Kehm Professor of Hematology, Emeritus

**The Mary and John Bent
Chair of Cardiovascular-Thoracic Surgery**

Established in 1970 through the leadership of Rush Trustee John P. Bent. The Chair was renamed on February 12, 1992 to honor the Bents, who have provided the major philanthropy for this professorship.

Holder: Hassan Najafi, M.D.

*The Mary and John Bent Professor of
Cardiovascular-Thoracic Surgery
Chairman, Department of Cardiovascular-Thoracic Surgery
Co-Director, Rush Heart Institute*

**Harry Boysen, M.D.,
Chair of Obstetrics and Gynecology**

Established in 1970 by gifts from the Woman's Board, the Trustees, and grateful patients of Harry Boysen, M.D.

Holder: Lourens J.D. Zaneveld, D.V.M, Ph.D.

*The Harry Boysen, M.D., Professor of Obstetrics
and Gynecology
Director, Section of Obstetrics and Gynecology Research*

**John M. Simpson
Chair of Obstetrics and Gynecology**

Established in 1970, When the late John M. Simpson, a dedicated Trustee of the Rush-Presbyterian-St. Luke's Medical Center for 38 years permitted his name to be identified with this endowment which was made possible largely through his generosity.

Holder: George D. Wilbanks, Jr., M.D.

*The John M. Simpson Professor of Obstetrics
and Gynecology
Chairman, Department of Obstetrics and Gynecology*

**Bishop Anderson
Chair of Religion and Medicine**

Established in 1970 through the philanthropy of Mrs. Laurance Armour, Sr. and the leadership of Bishop Charles P. Anderson, Bishop of the Episcopal Diocese of Chicago from 1900-1930, as an important recognition of the heritage and commitment of Rush-Presbyterian-St. Luke's Medical Center.

Holder: Laurel A. Burton, Th.D.

*The Bishop Anderson Professor of Religion and Medicine
Chairman, Department of Religion, Health
and Human Values*

The Reverend Christian A. Hovde, Ph.D, D.D.
*The Bishop Anderson Professor of Religion and Medicine
Emeritus*

**Ralph C. Brown, M.D.,
Chair of Internal Medicine**

Established in 1970 by the family and friends of Ralph C. Brown, M.D., a graduate of Rush Medical College who served as Professor of Medicine and who was a medical staff member of Presbyterian-St. Luke's Hospital until his death in 1954. Dr. Brown's son, R. Gordon Brown, M.D., now retired Senior Attending Physician in Internal Medicine, has continued his tradition of dedication to patients and to Rush Medical College.

Holder: Stuart Levine, M.D.

*The Ralph C. Brown, M.D., Professor of Internal Medicine
Chairman, Department of Internal Medicine*

**Thomas J. Coogan, Sr., M.D.,
Chair of Immunology**

Established in 1971 in tribute to the late Thomas J. Coogan, Sr., M.D., and in memory of Benjamin F. Lindheimer by Mr. Lindheimer's daughter, Marjorie Lindheimer Everett, who recognized Dr. Coogan's outstanding service to the medical profession and encouraged great progress in the discipline of immunology at Rush.

Holder: Henry Gewurz, M.D.

*The Thomas J. Coogan, Sr., M.D., Professor of Immunology
Chairman, Department of Immunology/Microbiology*

James Lowenstine
Chair of Internal Medicine

Created in 1971 by the Lowenstine Foundation to honor the President of Central Steel and Wire Company and to inspire and promote the Rush philosophy of patient-centered care and, in particular, the clinical training of the family doctor.

Holder: Gordon M. Trenholme, M.D.

The James Lowenstine Professor of Internal Medicine

Director, Section of Infectious Disease,

Department of Internal Medicine

Stanley G. Harris, Sr.,
Chair of Psychiatry

Established in 1972 as a lasting memorial to the late Stanley G. Harris, Sr., who provided Rush-Presbyterian-St. Luke's with leadership and philanthropy for many years.

Holder: Jan A. Fawcett, M.D.

The Stanley G. Harris, Sr., Professor of Psychiatry

Chairman, Department of Psychiatry

The Grainger Director, Rush Institute for Mental Well-Being

J. Bailey Carter, M.D.,
Chair of Cardiology

Established in 1972 by his widow, Ruth, this chair honors J. Bailey Carter, M.D., a well-known professor of cardiology on the Rush Medical College faculty from 1928 to 1938.

Stanton A. Friedberg, M.D.,
Chair of Otolaryngology
and Bronchoesophagology

Established in 1973 by the family, patients and friends of Stanton A. Friedberg, M.D., a pre-eminent physician, Rush Medical College alumnus, emeritus professor, former department chairman and president of the medical staff from 1964 to 1966.

Holder: David D. Caldarelli, M.D.

The Stanton A. Friedberg, M.D., Professor of Otolaryngology

and Bronchoesophagology

Chairman, Department of Otolaryngology

and Bronchoesophagology

Jack Fraser Smith
Chair of Surgery

Established in 1974 by Bertha Spaeti Smith in memory of her husband to recognize and honor outstanding physicians and surgeons in the Department of General Surgery.

Holder: James W. Williams, M.D.

The Jack Fraser Smith Professor of Surgery

Director, Section of Transplantation

Otho S. A. Sprague
Chair of Pathology

Established in 1975 to recognize the Otho S. A. Sprague Memorial Institute which was created through the will of Otho S. A. Sprague, civic leader in Chicago at the turn of the century, and which since 1938 has supported research at Rush, especially in the Departments of Biochemistry, Immunology/Microbiology and Pathology.

Holder: Victor E. Gould, M.D.

The Otho S. A. Sprague Professor of Pathology

George M. Hass, M.D.

The Otho S. A. Sprague Professor of Pathology Emeritus

Francis N. and Catherine O. Bard
Chair of Physiology

Established in 1975 by bequest of Francis N. Bard, who took an active interest in the Medical Center and which his widow, Catherine, now Mrs. Charles W. Board, and family continue.

Holder: Robert S. Eisenberg, Ph.D.

The Francis N. and Catherine O. Bard Professor of Physiology

Chairman, Department of Physiology

William A. Hark, M.D. - Susanne G. Swift
Chair of Orthopedic Surgery

Established in 1977, completed and named in 1986, by the bequests of Miss Susanne G. Swift and Mrs William A. Hark, and through personal gifts of the members of the medical staff and the Department of Orthopedic Surgery. Miss Swift was a patient of the late William A. Hark, M.D., his father, Fred W. Hark, M.D., and Carl A. Hedblom, Jr., M.D.

Holder: Gunnar B. J. Andersson, M.D., Ph.D.

The William A. Hark, M.D. - Susanne G. Swift

Professor of Orthopedic Surgery

Chairman, Department of Orthopedic Surgery

Samuel G. Taylor III, M.D.,
Chair of Oncology

Established in 1978 by friends, patients, and colleagues to honor Samuel G. Taylor III, M.D., Professor Emeritus of Internal Medicine, whose career at Rush began in 1932 when he earned a Rush Medical College degree. Dr. Taylor remains involved in the Section of Medical Oncology which he founded.

Holder: Jules E. Harris, M.D., F.R.C.P.(C), F.A.C.P.

The Samuel G. Taylor III, M.D., Professor of Oncology

Director, Section of Medical Oncology

Robert C. Borwell
Chair of Neurology

Established in 1978 by Robert C. Borwell, Trustee of Rush-Presbyterian-St. Luke's Medical Center, to set an example for others to follow for the endowment needs of the new Rush University and to support the research and treatment of multiple sclerosis and related diseases.

Holder: Floyd A. Davis, M.D.

The Robert C. Borwell Professor of Neurology
Director, Multiple Sclerosis Center

John L. and Helen Kellogg
Dean of the College of Nursing

Established in 1978 by the John L. and Helen Kellogg Foundation in the College of Nursing as part of a munificent \$4.5 million gift which also named the Kellogg Pavilion and created the John L. and Helen Kellogg National Center for Excellence in Nursing at the Medical Center as a memorial to Mr. and Mrs. Kellogg.

Holder: Kathleen Gainor Andreoli, D.S.N.

The John L. and Helen Kellogg Dean
of the College of Nursing
Vice President, Nursing Affairs

Luther Christman, Ph.D., R.N.
The John L. and Helen Kellogg Dean
of the College of Nursing Emeritus

Helen Shedd Keith
Chair of General Surgery

Established in 1980 in tribute to Helen Shedd Keith, first a member of St. Luke's Hospital Woman's Board and later of the combined boards of both Presbyterian and St. Luke's Hospitals, a founder of the Anchor Cross Society, and generous donor to Rush-Presbyterian-St. Luke's Medical Center. The chair was endowed by her daughter and son-in-law, Mary and John Bent. Mr. Bent is a Life Trustee of the Medical Center.

Holder: Richard A. Prinz, M.D.

The Helen Shedd Keith Professor of General Surgery
Chairman, Department of General Surgery

Steven G. Economou, M.D.
The Helen Shedd Keith Professor
of General Surgery Emeritus

Clark Wylie Finnerud, M.D.,
Chair of Dermatology

Established in 1981 by Mrs. Clark W. Finnerud in honor of her late husband, a distinguished alumnus and professor of Rush Medical College and towering figure in the field of American dermatology.

Holder: Michael D. Tharp, M.D.

The Clark Wylie Finnerud, M.D., Professor of Dermatology
Chairman, Department of Dermatology
Frederick D. Malkinson, M.D., D.M.D.
Chairman, Department of Dermatology, Emeritus

James A. Campbell, M.D.
Distinguished Service Chair

Established in 1981 by a group of former Chairmen of the Trustees and special friends of the Medical Center to permanently recognize the vision, imagination, and personal dedication of the Medical Center's first President.

The Muehrcke Family
Chair of Nephrology

Established in 1981 by Robert C. Muehrcke, M.D., and his family. Dr. Muehrcke is Associate Professor, Rush Medical College, and Director of the Kidney Center and of Medical Education at West Suburban Hospital, Oak Park, Illinois. The decision to initiate the establishment of this chair grew out of the training Dr. Muehrcke received at Rush and especially from the training he received from Robert C. Kark, M.D. who as Professor of Internal Medicine is world-renowned for his pioneering work in renal biopsies.

Holder: Edmund J. Lewis, M.D.

The Muehrcke Family Professor of Nephrology
Director, Section of Nephrology

William Gottschalk, M.D.
Chair of Anesthesiology

Established in 1984 by Mrs. William Gottschalk in honor of her late husband, a distinguished member of the Departments of Anesthesiology and Obstetrics and Gynecology. The Chair was made possible through a bequest intention of Mrs. Gottschalk and gifts from members of the Department of Anesthesiology.

Holder: Anthony D. Ivankovich, M.D.,

The William Gottschalk, M.D., Professor of Anesthesiology
Chairman, Department of Anesthesiology

Max Sadove, M.D.,
Chair of Anesthesiology

Established in 1973 primarily by gifts from members of the Department of Anesthesiology and patients and friends of Max S. Sadove, M.D. The chair was named for Dr. Sadove in 1985.

Holder: Kenneth J. Tuman, M.D.

The Max Sadove, M.D., Professor of Anesthesiology
Vice Chairman of Anesthesiology

Woman's Board

Chair of Child Psychiatry

Established in 1985 by the Woman's Board of Rush-Presbyterian-St. Luke's Medical Center as one of the first endowed Chairs in child psychiatry in the nation, to serve the needs of the children in the community. It is the second endowed Chair established by the Woman's Board.

Holder: Elva O. Poznanski, M.D.

The Women's Board Professor of Child Psychiatry

Director, Section of Child Psychiatry

Coleman/Fannie May Candies Foundation

Chair for the Director of the Thomas Hazen Thorne Bone Marrow Transplant Center

Established in 1985 by the Coleman/Fannie May Candies Foundation, Inc., to strengthen resources in the Midwest for cancer treatment and research, honoring the memory of a former director of the Foundation who died of leukemia.

Holder: Herbert Kaizer, M.D., Ph.D.

The Coleman/Fannie May Candies Foundation Professor

Director, Thomas Hazen Thorne Bone Marrow

Transplant Center

The CIBA-GEIGY

Chair of Biochemistry

Established in 1987 by CIBA-GEIGY, the American arm of the multinational chemical and pharmaceutical firm headquartered in Switzerland, with hopes of conquering arthritis, one of mankind's most widespread afflictions, and as an example of the productive relationships between industry and academic medicine.

Claude N. Lambert, M.D.-Helen S. Thomson

Chair of Orthopedic Surgery

Established in 1978 and endowed through the generous bequest of Helen S. Thomson, a patient, long-time friend and neighbor of the late Claude N. Lambert, M.D., who served the Medical Center for 40 years and who was a leader in setting the Department of Orthopedic Surgery on the course which has brought it world recognized stature.

Holder: Thomas P. Andriacchi, Ph.D.

The Claude N. Lambert, M.D. - Helen S. Thompson Professor of Orthopedic Surgery

Director, Section of Orthopedic Research

Charles J. and Margaret Roberts

Chair of Preventive Medicine

Established in 1987 through the generous bequest of Mr. and Mrs. Charles J. Roberts who were patients and long-time friends of the late physician, George W. Stuppy, M.D. and, in gratitude for his career and friendship, directed a generous bequest to establish the Charles J. and Margaret Roberts Fund for Preventive Medicine.

Holder: Henry R. Black, M.D.

The Charles J. and Margaret Roberts Professor of Preventive Medicine

Chairman, Department of Preventive Medicine

James A Schoenberger, M.D.

The Charles J. and Margaret Roberts Professor of Preventive Medicine, Emeritus

George W. Stuppy, M.D.

Chair of Arthritis

Established in 1987 through the generous bequest of Mr. and Mrs. Charles J. Roberts to honor the special relationship with Dr. George Stuppy. It recognizes Dr. Stuppy's distinguished career of nearly 50 years as a physician, scientist and teacher at the Medical Center.

Holder: Eugene J-M. A. Thonar, Ph.D.

The George W. Stuppy, M.D. Professor of Arthritis Professor, Internal Medicine

James B. Herrick, M.D.

Chair of Heart Research

Established in 1987 also through the magnificent generosity of Mr. and Mrs. Charles J. Roberts, it recognizes Dr. James B. Herrick's significant contribution's to cardiology and internal medicine. Dr. Herrick, a graduate of Rush Medical College, also served on the faculty for many years.

Holder: Joseph E. Parillo, M.D.

The James B. Herrick Professor of Heart Research Director, Section of Cardiology

Director, Section of Critical Care Medicine

Co-Director, Rush Heart Institute

Alla V. and Solomon Jesmer Chair of Gerontology and Geriatric Medicine

Established in 1988 through the generous bequest of Solomon Jesmer, as a tribute to his late wife and to the care both received at the Johnston R. Bowman Health Center for the Elderly. Mr. Jesmer hoped to advance research and education in the fields of gerontology and geriatric medicine.

Holder: Denis A. Evans, M.D.

The Alla V. and Solomon Jesmer Professor of Gerontology and Geriatric Medicine

Director, Center for Research on Health and Aging

Co-Director, Rush Alzheimer's Disease Center

Co-Director, Rush Institute on Aging

**Catharine and R. Winfield Ellis -
Philip N. Jones, M.D.**

Chair of University Affairs

Established in 1988 through the generous bequest of Mr. Ellis, this chair recognizes the importance of the patient-physician bond upon which the Medical Center has been built. In honoring their friend and physician, Philip N. Jones, M.D., the Ellises directed this gift to financial assistance for future health care deliverers being educated at Rush University, preference being given to students in the colleges of medicine and nursing.

Holder: John E. Trufant, Ed.D.

The Catharine and R. Winfield Ellis - Philip N. Jones, M.D.,

Professor of University Affairs

Dean, College of Health Sciences

Dean, The Graduate College

Vice President, Academic Support Services

John W. Curtin, M.D.

Chair in Plastic and Reconstructive Surgery

Established in 1989 by Mr. and Mrs. William A. Thomas, Sr., and other friends, patients, students and colleagues of John W. Curtin, M.D., former Chairman of the Department of Plastic and Reconstructive Surgery, to pay tribute to him and his many accomplishments in the field of plastic and reconstructive surgery.

Holder: Randall E. McNally, M.D.

The John W. Curtin, M.D. Professor of

Plastic and Reconstructive Surgery

Chairman, Department of Plastic and Reconstructive Surgery

Colonel Robert R. McCormick

Chair of Diagnostic Imaging

Created in 1989 through a generous gift from the Robert R. McCormick Charitable Trust, it builds upon the Trust's commitment to scientific investigation and diagnostic imaging as provided in the Colonel Robert R. McCormick Magnetic Resonance Facility which was established in 1983.

Holder: David A. Turner, M.D.

The Colonel Robert R. McCormick Professor

of Diagnostic Imaging

Director, The Robert R. McCormick

Magnetic Resonance Facility

Dr. Glenn G. and Blanche S. Ehrler

Chair of Obstetrics and Gynecology

Established in 1989 through a generous bequest of Dr. and Mrs. Glenn G. Ehler. Dr. Ehler was a 1931 graduate of Rush Medical College, took his internship at Presbyterian Hospital, and subsequently enjoyed a successful career in surgery.

Independence Foundation

Chair in Nursing Education

Established in 1989 the generosity of the Independence Foundation of Pennsylvania to advance nursing education and promote the pivotal role of nursing today and in the twenty-first century.

Holder: Ann Minnick, Ph.D., R.N.

The Independence Foundation Professor

of Nursing Education

Director, Office of Nursing Services Research and Support

Cynthia Oudejans Harris, M.D.

Chair of Psychiatry

Established in 1989 through the dissolution of the Stanley G. Harris, Sr. Trust, of which the Medical Center was a beneficiary, it honors the daughter of a former Trustee, Stanley G. Harris, Sr., and the sister of Life Trustee Stanley G. Harris, Jr., who dedicated her life to the practice of psychiatric medicine.

Stanley G. Harris Family

Chair of Psychiatry

Established in 1989, also through the dissolution of the Stanley G. Harris, Sr. Trust, it pays tribute to the Harris family's faithful stewardship of the Medical Center through the years.

Holder: David C. Clark, Ph.D.

The Stanley G. Harris Family Professor of Psychiatry

Executive Director, Center for

Suicide Research and Prevention

Research Director, Rush Institute for Mental Well-Being

Joseph and Florence Manaster Foundation

Chair of Multiple Sclerosis

Established in 1989 through a magnificent gift from the Joseph and Florence Manaster Foundation. Because of his concern for multiple sclerosis patients, Joseph Manaster, whose first wife, Florence, suffered from the disease, stipulated in his will that monies he left to the Foundation be used to provide compassionate care for M.S. patients.

Frances T. and Lester B. Knight

Chair of Gynecologic Oncology

Established in 1990 through the philanthropy of the Lester B. Knight Foundation, at the direction of Mrs. Frances T. Knight, for the purpose of furthering the diagnosis and treatment of ovarian cancer through education and research. This chair pays tribute to the memory of the late Mr. Knight and recognizes Mrs. Knight for her foresight and commitment to Rush. Furthermore, it is an expression of Mrs. Knight's gratitude to the Medical Center for excellence in patient care and, in particular to George D. Wilbanks, M.D.

**The United Parkinson Foundation of Chicago
Chair of Neurological Sciences**

Established in 1991 in large measure through the philanthropy of the United Parkinson Foundation. The chair pays tribute to the United Parkinson Foundation which has, through steady support over two decades, helped the Parkinson's disease program achieve international renown.

Holder: Harold L. Klawans, M.D.

*The United Parkinson Foundation Professor
in Neurological Sciences*

**The Grainger Directorship of
The Rush Institute for Mental Well-Being**

Established in 1992 through the magnificent generosity of David and Juli Grainger. This directorship honors the vision and values exemplified in the new initiative represented by the Rush Institutes. It also represents the Graingers' singular dedication to advancing research and treatment in psychiatry.

Holder: Jan Fawcett, M.D.

The Grainger Director, Rush Institute for Mental Well-Being

The Stanley G. Harris, Sr., Professor of Psychiatry

Chairman, Department of Psychiatry

**The Morton International Chair of
Orthopedic Surgery**

Since the 1940's, when the Chairman of Morton Salt, Sterling Morton, joined the Board of Trustees of St. Luke's Hospital, the company's top leadership has sustained the commitment to Rush. In 1992, the Morton International Chair of Orthopedic Surgery was established to benefit the countless individuals who suffer from low back pain.

**The Ralph and Marion C. Falk Chair of
Biochemistry**

Established in 1992 through the extraordinary philanthropy of the Dr. Ralph and Marion C. Falk Medical Research Trust for the purpose of furthering the study of osteoarthritis and cartilage physiology within The Rush Arthritis and Orthopedic Institute. This chair pays tribute to the Late Dr. and Mrs. Falk and their great commitment to the advancement of patient care through scientific investigation and the exploration of medical science.

**The Henry P. Russe, M.D. Dean of
Rush Medical College**

Established in 1992 through the generous philanthropy of Dr. Russe's family, friends, students and colleagues for the purpose of providing funds to be used at the discretion of the Dean of Rush Medical College. These much needed funds will be used to sustain the research of young investigators who are working to establish their careers. This chair pays tribute to the late Dr. Henry P. Russe for his tireless commitment to the practice of medicine, medical education and administration.

**The Crown Family Chair of
Orthopedic Surgery**

The 54th endowed chair was established in 1992 as a result of the generosity of the Crown family. The family has a special interest in the area of orthopedics and their gift established the chair for the study of joint replacement in The Rush Arthritis and Orthopedic Institute.

**The James A. Hunter, M.D.
University Professorship**

This is the first university-wide professorship that was established to recognize and perpetuate outstanding contributions in any discipline. This professorship was established in June of 1993 by friends, colleagues, and grateful patients in honor of the contributions James A. Hunter, M.D. has made to medicine as a teacher, a mentor and an exemplar to thousands of medical students and residents in specialty training.

**The Dr. Andrew and Peg Thomson Chair of
Internal Medicine**

Established in 1993 to honor Dr. Thomson, a General Trustee, and his wife Peg, a member of the Woman's Board, on the occasion of Dr. Thomson's retirement from active medical practice.

**The Charles Arthur Weaver Chair of
Cancer Research**

Established in 1993 with a magnificent gift from the Trust Estate of Charles Arthur Weaver, who died in 1941 at the age of 75, and who with this wife was cared for by physicians at Presbyterian Hospital. The Medical Center President with unanimous approval by the Board of Trustees determined the Rush Cancer Institute to be a suitable and eloquent memorial to Charles Arthur Weaver with the philanthropy from the Trust Estate going for the foreseeable future to provide support for the talents of the current and future faculty of the Institute.

**The Mary Denny Weaver Chair of
Cancer Research**

The second of two research professorships to be established in 1993 with a magnificent gift from the Trust Estate of Charles Arthur Weaver. To honor his wife, Mary Denny Weaver, who died of cancer and complications of cancer, the Medical Center President with unanimous approval by the Board of Trustees determined The Rush Cancer Institute to also be a suitable and eloquent memorial to Mary Denny Weaver.

**The C. Anderson Hedberg, M.D.
Professorship in Internal Medicine**

Established in February of 1994, this named, endowed professorship was created through the generous philanthropy of Frederick A. Krehbiel and John H. Krehbiel, Jr. as a perpetual memorial to their father, Rush Life Trustee, John Hammond Krehbiel, Sr. The professorship pays a lasting tribute to C. Anderson Hedberg, M.D., friend and primary care physician to Mr. Krehbiel, Sr., acknowledging his excellent and compassionate care and dedication to the clinical practice of medicine and the education of future physicians.

**The Grainger Directorship of the Rush
Arthritis and Orthopedics Institute**

Established in February 1994 by David and Juli Grainger to provide, in perpetuity, for the innovative patient care programs and important research within The Rush Arthritis and Orthopedic Institute.

Holder: Jorge O. Galante, M.D., D.M.Sc.

The Grainger Director, Rush Arthritis and Orthopedic Institute

**The Steven G. Economou, M.D.
Chair of General Surgery**

This named, endowed professorship was established in February 1994 through the magnificent philanthropy of the Pritzker Foundation and Robert A. Pritzker, a Trustee of the Medical Center, and friend and grateful patient of Dr. Steven G. Economou. The Chair recognizes Dr. Economou's many accomplishments and ensures that such excellence in the field of general surgery will continue at Rush-Presbyterian-St. Luke's through the recruitment of surgeons with the same dedication to research, patient care and the education of future surgeons as exemplified by Dr. Economou.

The Brian Piccolo Chair for Cancer Research
Established in 1994, through the generous philanthropy of the Brian Piccolo Cancer Research Fund and contributions from its largest donor, the National Football League, for the purpose of finding a cure for breast cancer. Upon future discovery of a cure for breast cancer, funds will be directed to areas of research in other cancers.

Holder: Janet Wolter, M.D.,

The Brian Piccolo Professor of Cancer Research

Director, Pigmented Lesion Center of

The Rush Cancer Institute

**The Abraham M. Chervony, M.D.
Professorship of Medical Affairs**

This 63rd endowed chair in Rush University and the first chair at Rush North Shore Medical Center was established in 1995 through the generous philanthropy of Dr. Abraham M. Chervony's family, colleagues, friends and grateful patients in recognition of his 29 years of service as a caring and skillful physician, teacher and leader at Rush North Shore Medical Center and its predecessor, Skokie Valley Hospital. The chair will support educational programs to nurture the development of promising young physicians.

**The Harry J. and Helen W. Williams
Chair in Cancer Research**

Through a charitable remainder unitrust established by Harry and Helen Williams in 1979 with Rush as the sole beneficiary, Rush was able to create the 64th endowed chair in Rush University in June of 1995. With great foresight, the Williamses designated the proceeds of the unitrust to the Medical Center's greatest need to be determined by the Trustees. The Trustees determined that the need was cancer research in The Rush Cancer Institute. The Williams Chair will advance cancer care and research for cancer patients everywhere and honor Harry and Helen Williams for their wonderful generosity.

The Floyd A. Davis, M.D. Chair of Neurology

This chair was established in 1995 by friends, patients and admirers of Floyd A. Davis, M.D., Director of The Rush Multiple Sclerosis Center, to recognize Dr. Davis' tireless devotion to the fight against multiple sclerosis and to provide perpetual funding for innovative research into this illness.

**The Frank R. Hendrickson, M.D.
Chair in Radiation Oncology**

Established in June of 1995 through the generosity of his colleagues, friends, former students and patients, this Chair honors Dr. Hendrickson's long and distinguished career at Rush-Presbyterian-St. Luke's Medical Center and the innovations he has made in the field of radiation oncology. The Chair bearing his name not only is a fitting tribute to his extraordinary accomplishments, but will carry Dr. Hendrickson's legacy of excellence in radiation oncology forward to new heights in patient care, research, and education.

**The John H. and Margaret V. Krehbiel
Professorship in Cardiology**

This named endowed professorship was established in June of 1995 at the direction of the sons of John and Margaret Krehbiel -- John, Jr. and Frederick. The professorship serves as a perpetual memorial to John and Margaret, recalling their dedication and service to Rush. It further symbolizes the family's commitment to the prevention and treatment of heart disease within the Rush Heart Institute.

Holder: Maria Rosa Costanzo, M.D.

*The John H. and Margaret V. Krehbiel Professor of Cardiology
Medical Director, Heart Failure and
Cardiac Transplant Program, Rush Heart Institute*

**The Anthony J. Ivankovich, M.D.
Chair of Anesthesiology**

Established in 1995 by faculty, former students and friends in tribute to Dr. Ivankovich for his achievements and contributions to Rush and to the field of anesthesiology to provide support for basic and clinical research as well as educational initiatives.

**The Roger C. Bone, M.D.
Presidential Chair of Rush University**

This named endowment was established in November of 1995 by friends and admirers of Dr. Bone, to pay tribute to him for his tireless commitment to the practice of medicine, medical education, and scientific research.

**The Rush University Chair
of Orthopedic Oncology**

The Rush University Chair of Orthopedic Oncology was established in 1996 by grateful patients and admirers of Steven Gitelis, M.D. Generous donors to this chair, which will support ongoing research in bone cancer research, include The Kemper Educational and Charitable Fund and the Thomas B. Hunter III Family.

Holder: Steven Gitelis, M.D.

Inaugural Holder, The Rush University

Chair of Orthopedic Oncology

Director, Section of Orthopedic Oncology

**The Grace Deforest and William Louis Veeck
Professorship
in Cardiovascular Research**

This named, endowed professorship was established in February of 1996 at the direction and through the magnificent philanthropy of the grandchildren of William and Grace Veeck: John H. Krehbiel, Jr., Frederick A. Krehbiel II, Michael Veeck, Marya Veeck, Dr. Gregory Veeck, Lisa Veeck, Dr. Juliana Veeck-Brosnan, Christopher Veeck, Peter Raymond Veeck, Ellen Veeck Maggs, and William Louis Veeck III. This professorship serves as a perpetual memorial to William and Grace and demonstrates their love of family, Chicago and commitment to the health of the community.

FACULTY

Departmental Faculty Listing	198
Alphabetical Faculty Listing	225

Faculty by Department

Anatomy

Seale, Raymond *
Professor
Acting Chair
Andriacchi, Thomas P.
Professor
Beck, Robert J.
Instructor
Dinsmore, Charles E. *
Assoc. Professor
Durica, Thomas E. *
Asst. Professor
Galante, Jorge O.
Professor
Hughes, W. Franklin *
Assoc. Professor
Jacob, Susan K. *
Asst. Professor
Kerns, James M. *
Assoc. Professor
Khodadad, Jena *
Asst. Professor
Leven, Robert M. *
Asst. Professor
Maibenco, Helen
Emeritus
Rawlins, Richard
Asst. Professor
Smith, Claire S.
Asst. Professor
Sumner, Dale R., Jr.
Assoc. Professor
Williams, James M. *
Assoc. Professor

Anesthesiology

Ivankovich, Anthony
Professor
Chair
Ahmed, Mohamed F.
Assistant
Amireh, Rasheed
Assistant
Asokumar, Buvanendran
Assistant
Badrinath, Shyamala K.
Assoc. Professor
Barboi, Cristina
Assistant
Barkin, Robert
Asst. Professor
Barnes, Steven D.
Asst. Professor
Benyamin, Ramsin M.
Instructor

Bhandari, Angelina Devi
Assistant
Bhugra, Maninder K.
Assistant
Blum, Steven L.
Asst. Professor
Boudeman, John Michael
Assistant
Brennan, Marjorie P.
Asst. Professor
Brown, Douglas V.
Instructor
Bullard, Scott J.
Assistant
Burnett, Yvonne L.
Asst. Professor
Cain, Donald John, III
Assistant
Callahan, Patrick
Asst. Professor
Cehovic, Georges A.
Assistant
Collins, Patricia H.
Instructor
Colombo, James A.
Instructor
Cosar, Ezlem Elifce
Assistant
Czinn, Edward A.
Asst. Professor
Dadabhoy, Zerin P.
Asst. Professor
Davis, Felicia A.
Asst. Professor
Djordjevic, Ljubomir
Asst. Professor
El Ganzouri, Abdel R.
Assoc. Professor
Elbaz, Nabil M. I.
Assoc. Professor
Ford, Erica W.
Asst. Professor
Gentile, Frank Michael
Assistant
Ghaem-Maghami, M.
Asst. Professor
Goldberg, Stephen Eric
Assistant
Gonzalez, Jorge Antonio
Assistant
Gramlich, Lisa
Assistant
Gutmann, Rebecca M.
Asst. Professor
Hameed, Yusuf H.
Instructor
Hameed, Yusuf H.
Assistant

Heller, Floyd N.
Assoc. Professor
Heymann, Harold
Assoc. Professor
Hong, Suzette Catherine
Asst. Professor
Huggins, Pamela Jean
Assistant
Jaffee, Jay B.
Instructor
Joseph, John R.
Assistant
Keh-Wong, Elisa S.
Asst. Professor
Kerchberger, John P.
Asst. Professor
Khorasani, Arjang
Asst. Professor
Kierney, Catherine M. P.
Asst. Professor
Kim, Robert Richard
Assistant
Klimas-Osolkowski, K.
Assistant
Klowden, Arthur J.
Asst. Professor
Knox, Stephen P.
Assistant
Krolick, Thomas J.
Asst. Professor
Lai, Joseph C.
Asst. Professor
Lai, Tai Min
Instructor
Lang, David J.
Asst. Professor
Larson, John M.
Asst. Professor
Lemper, Brian Anthony
Assistant
Lenz, Richard F.
Asst. Professor
Levin, Igor
Assistant
Levinthal, Daniel Joseph
Assistant
Lin, Yuan-Hwai
Instructor
Lipov, Eugene G.
Asst. Professor
Liu, Penny
Assistant
Liu, Yixiang
Assistant
Ljubanovic, Marijana
Assistant
Lubenow, Timothy
Assoc. Professor

Mahdi, Mirza A.
Asst. Professor
Manley, Steven J.
Asst. Professor
McCarthy, Robert J.
Assoc. Professor
McGrath, James M.
Assistant
Meister, Michael D.
Instructor
Milek, David S.
Asst. Professor
Miller, Paul E.
Instructor
Miller, Rodney Ross, Jr.
Assistant
Milshteyn, Lack L.
Assistant
Mitchell, Jason Scott
Asst. Professor
Moritz, Howard A.
Asst. Professor
Morris, Cindy L.
Asst. Professor
Murphy, Peter
Assoc. Professor
Nasr, Ned
Asst. Professor
Nath, Heather Anne
Asst. Professor
Newman, L Michael
Assoc. Professor
Normoyle, Donald
Instructor
O'Connor, Christopher
Asst. Professor
Oliveira, Blasco M.A.
Asst. Professor
Olson, Elaine E.
Asst. Professor
Panozzo, Kerry
Assistant
Parnass, Samuel M.
Assoc. Professor
Pedicini, Eric L.
Asst. Professor
Peng, Cora
Instructor
Perez, Edelberto C.
Asst. Professor
Pittman, Scott K.
Asst. Professor
Podraza, Adamina
Asst. Professor
Polianska, Marina
Assistant
Prasad, Neerukonda
Instructor

* indicates that the faculty member has an appointment in The Graduate College

Rahman, Syed Waizur
Assistant
Reddy, Chandra B.
Asst. Professor
Romaniak, Sandra L.
Assistant
Rothenberg, David M.
Assoc. Professor
Salem, M. Ramez
Professor
Sample, Madison Jr.
Assistant
Santander, Marc
Asst. Professor
Saxena, Sudershan
Asst. Professor
Schlais, Rudolph A. III
Assistant
Seshadri, Kandiur
Instructor
Shulman, Morton
Professor
Sidhu, Devinder Kaur
Assistant
Sosis, Mitchel
Asst. Professor
Spaccarelli, Karen C.
Asst. Professor
Stancic, Zoran
Assistant
Stansbury, James A., III
Assistant
Starck, Timothy W.
Asst. Professor
Tanna, Bhavna N.
Assistant
Torres, Maria L.
Asst. Professor
Tsai, Houn
Instructor
Tuman, Kenneth J.
Professor
Tuman, Mary T.
Asst. Professor
Val, Evalen
Assistant
Venugopal, Kottarathil
Asst. Professor
Wafai, Yaser
Asst. Professor
White, Lynn
Asst. Professor
White, Lynn R.
Instructor
Whittler, Steven G.
Assistant
Williams, Brian David
Instructor
Wong, Alfonso
Asst. Professor
Wu, Dickson S.
Asst. Professor
Yastrow, Edward S.
Asst. Professor
York, Jeffrey James
Assistant
Zekry, Hazem A.
Assistant

Biochemistry

Kuettner, Klaus*
Professor
Chair
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Yu, David Jin
Assistant
Zaacks, Stephen Mark
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Zaidi, Syed S A.
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Bezdek, Kathleen Jane
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Brown, Dawn
Instructor
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Asst. Professor

Neurological Surgery

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de Lanerolle, Primal
Visit. Assoc. Prof.
Erdos, Ervin G.
Visit. Professor
Everitt, Eliazbeth A.
Instructor
Frischer, Henri *
Professor
Goetz, Christopher
Asst. Professor
Gupta, Kailash C
Assoc. Professor
Hendey, William S. *
Asst. Professor
Lum, Hazel *
Asst. Professor
MacLeod, Catherine M. *
Asst. Professor
McCarthy, Robert J.
Instructor
Moon, Byong H *
Assoc. Professor
Nootens, Raymond H
Asst. Professor
Nora, Maris V *
Asst. Professor
Pierpaoli, Paul G. *
Professor

Podolski, Janice L.
Asst. Professor
Prancan, Arthur *
Assoc. Professor
RayChaudhury, Amlan
Instructor
Rieckmann, Karl H. W.
Visit. Professor
Roebuck, Kenneth A *.
Asst. Professor
Solaro, John R.
Visit. Professor
Uhal, Bruce D. *
Asst. Professor

Physical Medicine & Rehabilitation

Nicholas, John J.
Professor
Chair
Aliga, Norman A.
Asst. Professor
Amstutz, Diane K.
Asst. Professor
Arriola, Ermin Amros
Assistant
Batmangelich, Soroush
Asst. Professor
Burgesser, Mary Frances
Assistant
Carlton, Charles Lawrence
Assistant
Chaudhuri, Gouri
Asst. Professor
Clar, Steven A.
Assistant
Couri, Brian Anthony
Assistant
Davis, Gerri
Assistant
Dixon, Elton Wade
Assistant
Erwin, James H.
Asst. Professor
Flimlin, Mary T.
Assistant
Gruft, James H.
Asst. Professor
Haut, Allyson, E.
Asst. Professor
Hung, Ming Long
Assistant
Jackson, Alyce F.
Assistant
Kaiser, James A.
Assistant
Khanna, Priti
Assistant
Krieger, Richard Paul
Asst. Professor
Laluya, Joseph P.
Assistant
Lopez, Martita
Asst. Professor

Maragos, Valerie A.
Asst. Professor
McCarron, Edward J.
Asst. Professor
McDade, Sarah Bethany
Assistant
Neerukonda, Sujatha
Asst. Professor
Neyman, Ida
Asst. Professor
Oken, Jeffrey E.
Asst. Professor
Pang, Thomas Ying Chun
Asst. Professor
Pasimio, Edmund R.
Assistant
Rao, Noel
Assoc. Professor
Rybarczyk, Bruce D.
Asst. Professor
Santucci, Victoria DiTella
Assistant
Shekhani, Naseem A.
AssistantY
Stambolis, Vesilios
Asst. Professor
Steiner, Monica L.
Asst. Professor
Thompson, Carletta H.
Assistant
Valdez, Juan
Assistant
Venzon, Michael A.
Asst. Professor
Wichner, Monica H.
Assistant
Yee, Martin J.
Asst. Professor
Yokoo, Teiriki
Assistant

Plastic and Reconstructive Surgery

McNally, Randall E.
Professor
Chair
Aduss, Howard
Professor
Bittar, Sami M.
Asst. Professor
Bradley, Craig
Asst. Professor
Cook, John Q.
Instructor
Derman, Gordon H.
Asst. Professor
Ferlmann, James C.
Instructor
Ferraro, Jr., Stephen P.
Assistant
Figueroa, Alvaro
Instructor
Gallagher, Gary L.
Assistant

Gold, Henry O.
Emeritus
Mitchell, Charles Wm.
Assistant
Monroe, Clarence W.
Emeritus
Reisberg, David J.
Associate
Schafer, Michael E.
Assoc. Professor
Schenck, Robert R.
Assoc. Professor
Shin, Richard D.
Instructor
Swartz, Robert M.
Asst. Professor

Preventive Medicine

Black, Henry R.
Professor
Chair
Addington, Whitney W.
Professor
Baier, Claudia A.
Asst. Professor
Bakris, George Louis
Assoc. Professor
Berndtson, Keith R.
Asst. Professor
Brody, Jacob A.
Visit. Professor
Burton, Wayne N.
Asst. Professor
Chen, Shande
Asst. Professor
Cohen, Maynard
Professor
Davidson, Michael H.
Instructor
Davis, Andrew M.
Asst. Professor
Dillon, Charles D.
Asst. Professor
Eckenfels, Edward J.
Professor
Elam, Harry P.
Assoc. Professor
Elliott, William J.
Assoc. Professor
Glandon, Gerald L.
Asst. Professor
Grouse, Lawrence D.
Associate
Hahn, Jerome J.
Assoc. Professor
Hall, Yolanda F.
Asst. Professor
Harris, Alan A.
Assoc. Professor
Hoersch, Michelle D.
Instructor
Hudson, Edsel K.
Assoc. Professor
Kallick, Charles
Assoc. Professor

Kaufman, Barry D.
Visit. Ass't. Prof.
Kenamore, Bruce D.
Asst. Professor
Leurgans, Sue
Professor
Levin, Stuart
Assoc. Professor
Levine, Milton D.
Emeritus
Liebson, Philip R.
Professor
Llewellyn, John W.
Asst. Professor
Lucente, Tracy
Instructor
Madden, Thomas
Assoc. Professor
McCreary, Patricia A.
Assoc. Professor
Meyer, Peter M.
Asst. Professor
Neri Jr, Gilberto S.
Asst. Professor
Oleske, Denise M.
Asst. Professor
Pate, David J.
Instructor
Payne, Joseph
Asst. Professor
Proteau, Roseanne V.
Asst. Professor
Rosenson, Robert S.
Asst. Professor
Schoenenberger, Joseph
Asst. Professor
Sheldon, Stephen H.
Visit. Professor
Shott, Susan
Assoc. Professor
Turner, Irene R.
Asst. Professor
Vidaver-Cohen, Doris
Asst. Professor
Zeigler, Donald W.
Visit. Ass't. Prof.

Psychiatric and Gerontological Nursing

Ulsafer-Van Lanen, Jane
Asst. Professor
Acting Chair
Matthiesen, Valerie
Asst. Professor
Associate Chair
Rosenberg, Lisa
Asst. Professor
Associate Chair
Aizenstein, Shirley
Associate
Andreoli, Kathleen G.
Professor
Barkin, Robert
Asst. Professor
Brooks, Michael

Instructor
Carlson-Sabelli, Linnea
Asst. Professor
Christman, Luther
Emeritus
Cleary, Jennifer K.
Associate
Coulson, Dee
Associate
Cronin-Stubbs, Diane
Professor
Dall, Carol J.
Associate
Davis-Kipnis, Nancy L.
Associate
DeFabiis, Susanne
Associate
Delaney, Kathleen
Assoc. Professor
Denny, Mary Schemper
Associate
Di Filippo, Judith A.
Instructor
Doherty-Hamrick, Brenda
Associate
Donner, Edward
Asst. Professor
Doubek, Ann A.
Associate
Drugay, Marge
Associate
Duros-Silber, June
Associate
Farran, Carol J.
Professor
Gallagher, Geriann B.
Associate
Geis, Alice
Instructor
Glass, Michele
Instructor
Gokbudak, Helen
Associate
Gross, Deborah A.
Professor
Hatton, Jean
Associate
Heideman, Jean
Instructor
Hermann, Christine Ann
Instructor
Horton-Deutsch, Sara L.
Asst. Professor
Johnson, Mary E.
Instructor
Kapoor, Febe Deepak
Associate
Kociak, Kathleen A.
Associate
Kopytko, Edwin E.
Instructor
Kraft, Margaret
Associate
Kravitz, Rhonda
Associate
Lafferty, Cheryl M.
Instructor

Lamb, Karen
Asst. Professor
Le Sage, Joan
Professor
Lettieri-Marks, Donna
Instructor
Linnerud, Patricia
Associate
Lokos, Constance
Associate
Lynch, Priscilla
Asst. Professor
Marchlewski, Maria B.
Associate
Maxson, Ellen L.
Instructor
McCann, Judith
Asst. Professor
Meyer, Nancy
Associate
Miller, Joanne
Instructor
Murphy, Anna Zander
Associate
Newman, Ann H.
Associate
Pater-Nissen, Debra Marie
Associate
Perraud, Suzanne
Instructor
Pizzello, Lenora
Instructor
Roberts, Kathryn
Associate
Rogers, Jill K..
Associate
Rowe, John M.
Asst. Professor
Rubin-Terrado, Marilyn
Instructor
Scorza, Elaine
Instructor
Shanks, Kathleen
Asst. Professor
Sheldon, Jan Alyson
Associate
Sivertsen, Lynn I.
Asst. Professor
Smart, Kathryn A.
Instructor
Smyrniotis, Colleen Marie
Associate
Stegmaier, Jo Ann
Associate
Steinbach, Pamela T.
Associate
Stupay, Susan
Instructor
Tordecilla, Lydia
Instructor
Walton, Jane C.
Instructor
Waszkiewicz, Margaret
Instructor
Wilens, Nancy
Instructor
Wisby, Marian
Associate

Yosko, Kathleen
Associate
Psychiatry
Fawcett, Jan A.
Professor
Chair
Aagesen, Carl
Asst. Professor
Abbassian, Mehrdad
Instructor
Ahluwalia, Y. Kumar
Asst. Professor
Amdur, Mark
Asst. Professor
Anderson, David R
Asst. Professor
Angres, Daniel H.
Asst. Professor
Armstrong, Claesa
Asst. Professor
Arons, Martin
Asst. Professor
Bagri, Sushil
Asst. Professor
Balsam, Adrienne M.
Instructor
Banegas, Marta E.
Asst. Professor
Bank, Susan Lynn
Assistant
Barki, Zafeer Hussain
Assistant
Barkin, Robert
Asst. Professor
Baron, David H.
Asst. Professor
Baroya, Ivan Stephen
Assistant
Basch, Gail M.
Instructor
Becker, Lee H.
Asst. Professor
Belizario, Evangelina
Instructor
Benson, David
Asst. Professor
Berger, Jack C.
Asst. Professor
Berry, Robert A.
Asst. Professor
Bloom, Robert W.
Asst. Professor
Braun, Bennett G.
Asst. Professor
Buch, Piyush C.
Instructor
Buchanan, Robert W.
Asst. Professor
Buck, David W.
Asst. Professor
Busch, Katie
Asst. Professor
Calihan, Elizabeth W.
Assistant
Cameron, Colin J.
Assistant

Cann, Stephen R.
Instructor
Carattini-Eley, Francine
Assistant
Carlock, William D.
Instructor
Cavanaugh, James L., Jr.
Professor
Cavanaugh, Stephanie
Professor
Chor, Philip N
Asst. Professor
Clark, David C.
Assoc. Professor
Clark, Susan H.
Instructor
Conroe, Henry G.
Asst. Professor
Cooperman, Suzanne K.
Asst. Professor
Cornella-Carlson, Tracey
Assistant
Crawford, James W.
Assoc. Professor
Dampitz, Robert E.
Asst. Professor
David, Paul P.
Asst. Professor
Dederick, Margarida M.
Asst. Professor
Del Campo, Jose A.
Asst. Professor
Easton, Michael S.
Asst. Professor
Ebenhoeh, Patrick E.
Asst. Professor
Echevarria, Fidel
Assistant
Edwards, John H.
Visit. Ass't. Prof.
Epstein, Phillip S.
Asst. Professor
Ericksen, Stephen E.
Asst. Professor
Fanelli, Joseph G.
Asst. Professor
Feldmann, Theodore B.
Instructor
Fine, Martin
Asst. Professor
Fink, Peter
Asst. Professor
Florence, Neal R.
Asst. Professor
Gable, Leslie
Instructor
Garcia, Raymond C.
Assistant
Gerty, Francis J.
Emeritus
Gierl, Benedict L.
Asst. Professor
Gokhale, Sudhir M.
Instructor
Golbin, Alexander Z.
Instructor
Golchini Shafa, Mehdi
Associate

Goldberg, Arnold I.
Professor
Goodfriend, Marlene S.
Asst. Professor
Gottlieb, John F.
Instructor
Gruenberg, Linda
Instructor
Gwyer, Fred V.
Asst. Professor
Ha, Yong Soo
Instructor
Halper, Ira S.
Asst. Professor
Hanni, John W.
Professor
Harris, Charles R.
Instructor
Hartlage, Shirley S.
Asst. Professor
Hartman, Edith
Instructor
Haynes, Joan
Instructor
Hendler, Samuel
Asst. Professor
Hirsch, Alan R.
Asst. Professor
Holemon, Lance D.
Instructor
Holinger, Paul C.
Professor
Huh, John
Assistant
Hulcher, Julia M
Instructor
Hussain, Ahmed M.
Instructor
Imani, Pouran A.
Asst. Professor
Ivanoff, Jeffrey A.
Asst. Professor
Jaffe, Charles M.
Asst. Professor
Jaiarj, Parnjai
Assistant
Jiron, Arnoldo J.
Asst. Professor
Johnson, Bruce C.
Instructor
Johnson, Kathleen H.
Instructor
Johnson, Margery R.
Asst. Professor
Jones, Frank A. D.
Asst. Professor
Kachoris, Paul J
Asst. Professor
Kanner, Andres
Asst. Professor
Karrel, Richard
Instructor
Katz, Jerome I.
Emeritus
Kelly, Jonathan
Asst. Professor
Kluft, Richard P.
Visit. Assoc. Prof.

Faculty by Department

Kravitz, Howard
Assoc. Professor
Krawczyk, John G.
Instructor
Kut, Joseph L.
Instructor
Lam, Ing-Ing
Assistant
Lane, Harold J.
Instructor
Lazarus, Lawrence W.
Asst. Professor
Lee Chuy, Ismael
Instructor
Leff, Joel R.
Instructor
Levin, Daniel Eric
Instructor
Levitan, Kenneth M.
Asst. Professor
Lewinbuk, Dan David
Assistant
Lewis, Rita
Instructor
Libert, Samuel A.
Associate
Litowitz, Bonnie E.
Visit. Assoc. Prof.
Lovallo, William R.
Visit. Ass't. Prof.
Lozano, Cosme Oziel, Jr.
Assistant
Mangoubi, Elie
Instructor
Martin, Ernesto L.
Assistant
Martin, Susan
Instructor
McNeil, David
Instructor
Meehan, Marjorie C.
Emeritus
Mehlinger-Mitchell, R.
Asst. Professor
Meiszner, John W.
Instructor
Mershon, Steven
Asst. Professor
Miles, William Scott
Assistant
Miller, Raymond N.
Associate
Misra, Sahana
Assistant
Moolayil, Kumar D.
Instructor
Morrison, Caroline M.
Instructor
Morrison, David
Asst. Professor
Mueller, Patricia A.
Asst. Professor
Nayudu, Sasikiran
Assistant
Newsome, Mary
Asst. Professor
Nutenko, Victor E.
Instructor

Olsen, Joann Marie
Instructor
Palella-Kobler, Roxanne
Assistant
Pan, Philip Dean
Assistant
Patel, Minaldevi
Asst. Professor
Patterson, Joan E.
Asst. Professor
Pecen, Nancy E.
Instructor
Perkins, George L.
Emeritus
Pieper, William J.
Asst. Professor
Pierce, Karen
Asst. Professor
Pisani, Vincent D.
Asst. Professor
Poznanski, Elva
Professor
Putnam, Frank W.
Visit. Assoc. Prof.
Rattan, Pradeep
Instructor
Reifman, Robert A.
Asst. Professor
Reinstein, Michael J.
Asst. Professor
Ripeckyj, Andrew
Asst. Professor
Rose, Robert Marc
Visit. Professor
Rosenblate, Robin Lynn
Assistant
Rosenmutter, Gary M.
Instructor
Rosenthal, Maurice J.
Asst. Professor
Rosenthal, Ruth Beth
Instructor
Ross, Jeffrey S.
Instructor
Sachs, Roberta
Asst. Professor
Samelson, Charles F.
Asst. Professor
Sanders, Roxane Y.
Instructor
Sanker, Jayachandran
Instructor
Schaff, Mary Ruth
Asst. Professor
Scheftner, William A.
Asst. Professor
Schell, Nancy P.
Assistant
Schneider, Robert H.
Visit. Assoc. Prof.
Schrift, Michael J.
Asst. Professor
Schroeder, Steven M.
Instructor
Seltzberg-Romeo, Roni
Instructor
Shulman, Robert B.
Instructor

Shvartsman, Leonid
Instructor
Siegall, Scott Andrew
Assistant
Siegel, Irwin
Asst. Professor
Sivan, Abigail B.
Asst. Professor
St Clair, Doris E.
Asst. Professor
St Pierre, Aimee C.
Asst. Professor
Stahl, Laura
Assistant
Stampley, Jan O.
Instructor
Steed, W David
Assoc. Professor
Strozier, Charles P.
Visit. Ass't. Prof.
Thampy, Kishore J.
Asst. Professor
Thompson, Dennis S.
Instructor
Tracy, Katherine Ann
Assistant
Trager, Eugene P.
Asst. Professor
Trakas, Demetrius A.
Asst. Professor
Vazquez, Juan J.
Emeritus
Viner, Jesse
Asst. Professor
Vivar, Zenaida
Instructor
Voltolina, Eugene J.
Instructor
Wahlstrom, Carl M., Jr.
Asst. Professor
Wasyliv, Orest
Asst. Professor
West, James Ward
Asst. Professor
Westheimer, Ruth
Asst. Professor
Winsberg, Gwynne Roese
Visit. Assoc. Prof.
Wright, Donovan G.
Emeritus
Yballe, Sonia B.
Asst. Professor
Young, Michael
Assoc. Professor
Zadylak, Robert G.
Asst. Professor
Zajecka, John M.
Asst. Professor
Zakko, Hazim Y.
Asst. Professor

Psychology and Social Sciences

Cartwright, Rosalind D. *
Professor
Chair
Aber, William R.
Asst. Professor
Anderson, David R. *
Asst. Professor
Aschkenasy, Jean R.
Asst. Professor
Beeman, Mark E.
Asst. Professor
Bernard, Brian A.
Asst. Professor
Berry, Robert A.
Asst. Professor
Bloom, Robert W.
Asst. Professor
Brady, Marianne J.
Asst. Professor
Burton, Laurel A.
Assoc. Professor
Cameron, Christine Lee
Assistant
Campbell, Stuart W.
Asst. Professor
Cella, David F. *
Professor
Chang, Chih-Hung
Asst. Professor
Christman, Luther
Professor
Clark, David C.
Professor
Cline, Daniel J.
Asst. Professor
Collier, Timothy
Assoc. Professor
Comella, Cynthia L.
Asst. Professor
Crawford, James W.
Assoc. Professor
Daugherty, Steven R.
Asst. Professor
deToledo-Morrell, Leyla *
Professor
Dyonzak, Jane V.
Asst. Professor
Eastman, Charmane *
Assoc. Professor
Farrell, Patricia
Asst. Professor
Fleischman, Debra A.
Asst. Professor
Fogg, Louis F.
Asst. Professor
Freeman, Anderson C.
Asst. Professor
Gabrieli, John D.
Visit. Ass't. Prof.
Garron, David C. *
Professor
Gilley, David W.
Asst. Professor

Glandon, Gerald L.
Asst. Professor
Glisky, Martha Louise
Assistant
Goodman, Daniel J.
Instructor
Grote, Christopher L.
Asst. Professor
Hahn, Elizabeth A.
Instructor
Hartlage, Shirley S.
Asst. Professor
Hartman, David
Asst. Professor
Haut, Allyson, E.
Asst. Professor
Hoeppner, Jo-Ann L. B.
Visit. Ass't. Prof.
Johnson, Marilyn A. *
Asst. Professor
Leavitt, Frank *
Assoc. Professor
Lloyd, Stephen R. *
Asst. Professor
Lopez, Martita *
Assoc. Professor
Lovalo, William R.
Visit. Professor
Mead, John D. *
Asst. Professor
Monti, Laura
Asst. Professor
Nelson, Michael N. *
Assoc. Professor
Nyenhuis, David L.
Asst. Professor
Pisani, Vincent D.
Asst. Professor
Reichmann, Simona Karin
Asst. Professor
Ristanovic, Ruzica
Asst. Professor
Rosen, Warren D.
Asst. Professor
Rybarczyk, Bruce D.
Asst. Professor
Sachs, Roberta
Asst. Professor
Schoenenberger, Joseph
Asst. Professor
Sivan, Abigail B.
Asst. Professor
Stebbins, Glenn T., III
Asst. Professor
Stewart, James D.
Asst. Professor
Terebessy, Hilarie
Asst. Professor

Ward, Wendy Louise
Assistant
Wasylw, Orest
Asst. Professor
Wilson, Robert S. *
Professor
Yellen, Suzanne B.
Asst. Professor
Young, Michael
Assoc. Professor

Radiation Oncology

Saxena, Virenda S.
Professor
Chair
Barnes, Steven D.
Asst. Professor
Blazek, Ed Robert
Asst. Professor
Bryant, David
Assistant
Cardwell, Anne Byrne
Assistant
Chu, James, C.H.
Professor
Conterato, Dean
Asst. Professor
Dutta, Swati
Asst. Professor
Filmanowicz-Baker, K.
Assistant
Griem, Katherine L.
Assoc. Professor
Groch, Mark W.
Professor
Gupta-Burt, Shalina
Asst. Professor
Hardin, Peter Boswell
Assistant
Hendrickson, Frank R.
Emeritus
Huang, Tien-Shew William
Assistant
Jacobs, James S.
Assistant
Kang, Hyuk J.
Instructor
Katha, Ponnunni K. I. .
Assoc. Professor
Kramer, Toby
Asst. Professor
Lanzl, Lawrence H.
Professor
Lee, Myung-Sook
Assoc. Professor
Murthy, Anantha K.
Assoc. Professor

Nguyen, Cam
Instructor
Phillips, Alexander K.
Asst. Professor
Recine, Diane C.
Asst. Professor
Reddy, Salitha
Professor
Rubin, David B.
Asst. Professor
Saclarides, Theodore
Asst. Professor
Saroja, Kurubarahalli
Asst. Professor
Sharma, Madhu M.
Asst. Professor
Smorowski, Karen Marie
Assistant
Urbon, John
Asst. Professor
Vallow, Laura Ann
Assistant
Zusag, Thomas W.
Asst. Professor

Religion, Health & Human Values

Burton, Laurel A.
Professor
Chair
Berndtson, Keith R.
Associate
Bosek, Marcia
Asst. Professor
Brown, Max Douglas
Assoc. Professor
Burbank, Barbara Beth
Asst. Professor
Burck, Russell
Assoc. Professor
DuBose, Edwin Rembert
Associate
Fitchett, George
Assoc. Professor
Hamel, Ronald P.
Associate
Llewellyn, John W.
Instructor
McClaskey, Margaret C.
Instructor
O'Reilly, Jo Ann
Asst. Professor
Opacich, Karin J.
Instructor
Rosenblum, Dolores
Associate
Rowe, John M.
Instructor

Savage, Teresa A.
Instructor
Sheldon, Mark Peter
Assoc. Professor
Wiens, Dolores F.
Associate
Zbilut, Joseph P.
Asst. Professor

Urology

McKiel, Charles F., Jr.
Professor
Chair
Bormes, Thomas P.
Asst. Professor
Cottrell, Thomas L. C.
Visit. Ass't. Prof.
Ekbal, Shahid S.
Asst. Professor
Elterman, Lev
Assistant
Flanagan, Malachi J.
Professor
Guinan, Patrick
Asst. Professor
Hoeksema, Jerome
Asst. Professor
Hoyme, Kermit
Instructor
Latzko, Karen M.
Instructor

Lenting, Eric L.
Assistant
Levine, Laurence Adan
Assoc. Professor
Levine, Stanley R.
Asst. Professor
Lisek, Ernst W.
Assistant
Merrick, Paul Franklin
Instructor
Merricks, James W.
Emeritus
Papierniak, Frank B.
Emeritus
Pessis, Dennis A.
Assoc. Professor
Rooney, Peter
Instructor
Rubenstein, Marvin
Instructor
Sadoughi, Nader
Assoc. Professor
Slutsky, Joel N.
Instructor

Alphabetical List

The alphabetical listing of the faculty beginning on the next page includes self-reported data on the highest degree, and university conferring that degree if known, plus the department(s) in which the faculty member has an appointment. If more than one appointment, the first listed is the primary appointment.

Abbreviations used in the Alphabetical Faculty Listing to identify departmental appointments.

ANAT	Anatomy
ANES	Anesthesiology
BCH	Biochemistry
CHN	Community Health Nursing
CDS	Communication Disorders and Sciences
CNTR	Clinical Nutrition
CVT	Cardiovascular-Thoracic Surgery
DERM	Dermatology
DIAG	Diagnostic Radiology
FAM	Family Practice
GSUR	General Surgery
HSM	Health Systems Management
IMMC	Immunology/Microbiology
MATN	Maternal Child Health Nursing
MED	Internal Medicine
M/SN	Medical/Surgical Nursing
MPH	Medical Physics
MTPT	Medical Technology and Perfusion Technology
NEU	Neurological Sciences
NEUS	Neurological Surgery
OBG	Obstetrics and Gynecology
OCC	Occupational Therapy
OPHTH	Ophthalmology
ORTH	Orthopedic Surgery
OTO	Otolaryngology & Bronchoesphagology
PATH	Pathology
PED	Pediatrics
PHR	Pharmacology
PMR	Physical Medicine & Rehabilitation
PHY	Molecular Biophysics and Physiology
PLAS	Plastic and Reconstructive Surgery
PSY	Psychiatry
PSYC	Psychology and Social Sciences
P/GN	Psychiatric/Gerontological Nursing
PVM	Preventive Medicine
RADO	Radiation Oncology
RHHV	Religion, Health and Human Values
UROL	Urology

The highest degree listed on the faculty roster system appears under the faculty name with the college. Database limitations permits listing United States colleges and only a few nearby Canadian colleges. Faculty degrees earned outside the United States may list the country or other statement if country not determined at time of publication. More than one degree may be listed at the same level.

Alphabetical Faculty Listing

- Aagesen, Carl**
D.O., Univ. of Iowa
PSY
- Abate, Kelly**
DERM
- Abbasi, Ismail M.**
M.B.B.S., Egypt
PED
- Abbassian, Mehrdad**
M.D.
PSY
- Abdullah, Raied Naim**
M.D., Rush University
MED
- Abensohn, Meryl K.**
M.D., Washington Univ.
DERM
- Aber, William R**
Ph.D., Florida Int'l. Univ.
PSYC
- Abrahamian, Frida P.**
M.D., Ohio State Univ.
MED
- Abramovitz, Samuel**
M.D.
OBG
- Abrinko, Paula M.**
M.D., St. Louis Univ.
MED
- Abtahi, Mohammed**
M.D., Iran
PED
- Abusharif, Hamdala H.**
PED
- Acharya, Vasant**
M.B.B.S., India
OBG
- Ackerman, Laurens V.**
M.D., Ph.D., U. of Ill.-Chgo.
DIAG
- Ackman, Jeffrey D.**
M.D., U. of Illinois-Chgo.
ORTH
- Adamiec, Lois**
M.S., Illinois State Univ.
CDS
- Adams, Ralph Antony**
M.S., Rush University
OCC
- Adams, Robert Douglas**
M.D., U. of Illinois-Chgo.
CVT
- Adams, Verdine**
D.P.M., Northwestern Univ.
ORTH
- Adapathya, Shankarnara**
M.B.B.S., India
OBG
- Addington, Whitney W.**
M.D., Northwestern Univ.
MED, FAM, PVM
- Adeli, Donald R.**
M.D., U. of Illinois-Chgo.
OBG
- Adeni, Shubha**
M.B.B.S.
PED
- Adeni, Sikander**
M.B.B.S.
PED
- Adkins, Geoffrey**
M.D., Univ. of Chicago
OBG
- Adler, Solomon**
M.D., Einstein Sch. of Med.
MED
- Aduss, Howard**
D.D.S., Northwestern Univ.
PLAS, GSUR
- Agarwala, Brojendra N.**
M.B.B.S., India
PED
- Aggarwal, Nimit Kumar**
MED
- Ahart, Sharon L.**
M.D., Mexico
PED
- Ahluwalia, Nalina**
M.D.
MED
- Ahluwalia, Y. Kumar**
M.B.B.S., India
PSY
- Ahmadian, Yahya S.**
M.D., Iran
PED
- Ahmed, Mohamed F.**
ANES
- Ahmed, Ziauddin**
M.B.B.S., India
MED
- Ahomka-Lindsay, Dinah**
M.D., U. of Illinois-Chgo.
FAM
- Ahstrom, James P., Jr.**
M.D., Northwestern Univ.
ORTH
- Aimi, Kenji**
M.D., Japan
OTO
- Aizenstein, Shirley**
M.S.N, Loyola U. of Chgo.
P/GN
- Akhtar, Naveed**
M.D.
IMMC
- Akhter, Nadim**
M.D., Rush University
MED
- Akrami, Cyrus**
M.D., Iran
PED
- Akre, David A.**
M.S., Rush University
M/SN
- Akre, Osmund H.**
M.D., Rush University
MED
- Al-Abdulla, Raid**
M.D.
PED
- Al Aswad, Basal**
M.D., Iraq
ORTH
- Al-Jabi, Ayman**
M.D.
PED
- Alak, Ala M.**
Ph.D., Texas Tech. Univ.
BCH
- Alber-Jahocki, Denise M.**
M.S., Rush University
CDS
- Alberte-Lista, Cesar**
M.D.
MED
- Albovias, Susan P.**
M.D., Philippines
FAM
- Albrecht, Leslie J.**
M.S., Rush University
M/SN
- Alcorn, Franklin S.**
M.D., New York University
DIAG
- Aldairi, Mohammed F.**
MED
- Aldana, Otto**
M.D.
PED
- Alder, Gary F.**
D.D.S., Northwestern Univ.
GSUR
- Alderman, Sarah M.**
M.D., U. of Illinois-Chgo.
MED
- Aleman, Marco A.**
M.D., U. of Illinois-Chgo.
MED
- Alexander, Maryann**
M.S., Northwestern Univ.
MATN
- Alfafara, Araceli**
M.S.N, Loyola U. of Chgo.
M/SN
- Ali, Amjad**
M.B.B.S., India
DIAG
- Ali, Syed Imran**
M.B.B.S.
MED
- Alibazoglu, Haluk**
M.D.
DIAG

Alphabetical Faculty Listing

- Aliga, Norman A.
M.D., Philippines
PMR
- Alkaddour, Hala S.
M.D.
PED
- Allegretti, Joseph P.
M.D., Loyola U. of Chgo.
OTO
- Allen, Richard R.
M.D., U. of Illinois-Chgo.
PED
- Almeda, Francis Andrew Q.
M.D.
MED
- Alshabkhoun, Shakeab
M.D.
CVT, GSUR
- Altman, Barri Falk
M.S., Rush University
HSM
- Altman, Jeffrey Steven
M.D., Rush University
DERM
- Altman, Scott R.
M.D., U. of Cincinnati
FAM
- Altree, Victoria Ann
M.D., Rush University
MED
- Alvaraez, Jose F.
M.D.
DIAG
- Amato, Joseph
M.D., Loyola U. of Chgo.
CVT, PED
- Ambrose, Laureen
M.D., Chgo. Medical Sch.
OBG
- Amdur, Mark
M.D., Northwestern Univ.
PSY
- Amine, Abdul R. C.
NEUS
- Amireh, Rasheed
M.B.B.S.
ANES
- Amory, David William, Jr.
M.D., Tulane
ORTH
- Analytis, Spyro D.
M.D.
MED
- Andejas, Jean M.
M.S., Rush University
M/SN
- Anders, Timothy Joseph
M.D., Med. Col. of Ohio
MED
- Andersen, James H.
M.D., U. of Illinois-Chgo.
CVT
- Anderson, Christopher
MTPT
- Anderson, David R.
Ph.D., U. of North Dakota
PSYC, PSY
- Anderson, Donald
M.D., Case Western Res. U.
FAM
- Anderson, Jeffrey E.
M.D., Rush University
GSUR
- Anderson, Kenning M.
M.D., Northwestern Univ.
Ph.D., Univ. of Chicago
BCH, MED
- Anderson, Richard W.
M.D., U. of Ill.-Cham/Urb
OBG
- Anderson, Robert A., Jr.
Ph.D, Chgo. Medical School
PHY
- Anderson, Tara Lee
M.D., Creighton Univ.
OBG
- Andersson, Gunnar
M.D., Ph.D., Sweden
ORTH
- Andreoli, Kathleen
D.S.N., U. of Alabama-Bghm.
M/SN, PGN
- Andrews, Steven L.
M.D., Ohio State Univ
FAM
- Andriacchi, Thomas P.
Ph.D., U. of Illinois-Chgo.
ORTH, ANAT
- Andricacou, Calliope
M.D., Greece
PED
- Angres, Daniel H.
M.D.
PSY
- Angspatt, Sompongse
M.D., Thailand
PED
- Antony, Sonia
M.B.B.S.
PED
- Appel, Burton E.
M.D., Univ. of Chicago
PED
- Arain, Mohammed
M.B.B.S., Pakistan
GSUR
- Arami, Shiva
M.D, Chgo. Medical School
MED
- Arand, Walter A.
M.D., Univ. of Chicago
MED
- Archie, Julian T.
M.D., New York University
OBG
- Arcilla, Rene A.
M.D., Philippines
PED
- Arias, Ada I.
M.D.
MED
- Armstrong, Claressa
M.D., Med. Col. of Penna.
PSY
- Arneccilla, Pablo B.
M.D., Philippines
PED
- Arons, Martin
M.D., West Germany
PSY
- Arora, Vipal K.
M.B.B.S., India
OBG
- Arriola, Ermin Amros
M.D., Loyola U. of Chgo.
PMR
- Arsenis, Charalampos
Ph.D., Cornell Univ.
BCH
- Aschkenasy, Jean R.
Ph.D., Vanderbilt Univ.
PSYC, PED,
- Ashbach, David L.
M.D., Case Western Res. U.
MED
- Asokumar, Buvanendran
M.B.B.S.
ANES
- Atieh, Osama Khairy
M.D., Rush University
MED
- Atiyah Raja A.
M.D.
OTO, GSUR
- Atlas, Gerald D.
M.D., U. of Illinois-Chgo.
FAM
- Attar, Bashar
MED
- Auerbach, Kathleen
MATN
- Augustin, Joel J.E.
M.D.
FAM
- Ault, Bettina H.
M.D.
PED
- Austin, Kimberley
M.A., Northwestern Univ.
CDS
- Averbuch, Amir
M.S.
PHY
- Averion, Roxanne M.
M.S., Rush University
NMS
- Axelrod, Edward H.
M.D., U. of Illinois-Chgo.
OBG
- Aydelotte, Margaret
Ph.D., United Kingdom
BCH
- Azcuela, C'zarina Obdulia
M.D., U.C.L.A.
OBG
- Azeem, Asif
M.B.B.S., Pakistan
MED
- Azuogu, Onyemeze
M.B.B.S.
PED

- Babakitis, Mary R.
M.D., Greece
PED
- Babu, Kamalesh
M.B.B.S.
MED
- Baca, Heidi J.
M.D., U. of Illinois-Chgo.
DERM, OPHT
- Bach, Bernard R., Jr.
M.D., U. of Cincinnati
ORTH
- Backer, Barbara
M.D., Indiana Univ.
MED
- Baddi, Ajay
M.D., Univ. of Miami
MED
- Bading, Eva
M.D., Ph.D., West Germany
FAM
- Badri, Sheila Mina
M.D., Rush University
MED
- Badrinath, Shyamala K.
M.B.B.S., India
ANES
- Bagdade, John
M.D., Cornell Univ.
MED, BCH
- Bagri, Sushil
M.B.B.S., India
PSY
- Baier, Claudia A.
M.P.H., U. of Minn. Morris
PVM
- Bailey, Ann B.
M.S., Indiana University
HSM
- Bailey, Larry L.
M.D., Univ. of Kansas
OTO
- Bailey, Orville T.
M.D., Albany Med. Col.
NEU, PATH
- Bakdash, Tarif
M.D.
NEU
- Baker, Elizabeth
M.D., Loyola U. of Chgo.
MED
- Bakken, C. David
M.D., Baylor Col. of Med.
MED
- Bakris, George Louis
B.A., Indiana University
PVM, MED
- Balagtas, Rolando C.
M.D., Philippines
PED
- Baldinger, Michael
M.D., Mt. Sinai. Sch. Med.
MED
- Baldwin, David, Jr.
M.D., Rush University
MED
- Baldwin, David, Sr.
M.D., Northwestern Univ.
MED
- Balk, Robert A.
M.D., Univ. of Missouri
MED
- Balkoura, Maria H.
M.D., Greece
MED
- Ball, Jeanie Ann
M.S., Boston College
MATN
- Balsam, Adrienne M.
M.D., U. of Illinois-Chgo.
PSY
- Banegas, Marta E.
M.D., Honduras
PSY
- Banerji, Manatosh
M.B.B.S.
MED
- Bank, Susan Lynn
M.D., SUNY at Buffalo
PSY
- Baraglia, James P.
M.D., Chgo. Medical Sch.
FAM
- Barboi, Alexandru C.
M.D.
NEU
- Badri, Sheila Mina
M.D., Rush University
MED
- Barker, David E.
M.D., U. of Illinois-Chgo.
MED
- Barki, Zafeer Hussain K
M.B.B.S.
PSY
- Barkin, Robert
Pharm.D., Purdue Univ.
PHR, ANES, FAM, P/GN, PSY
- Barman, Nishi
M.D., Northwestern Univ.
MED
- Barnard, Joseph W.
Ph.D., Indiana University
PHR
- Barnes, Lindsey Lee
OCC
- Barnes, Louis J.
M.D., U. of Illinois-Chgo.
MED
- Barnes, Steven D.
PED, ANES, RADO
- Barnhart, William D
MED
- Barnicle, Madeline M.
M.S.N., U. of Illinois-Chgo.
M/SN
- Baron, David H.
M.D., Case Western Reserve
PSY
- Baroya, Ivan Stephen
M.D., Loma Linda Univ.
PSY
- Barresi, Roberto V.
M.D., Rush University
GSUR
- Barrett, David
M.D., Med. Col. of Wisc.
PATH
- Barrett, Jean Ellen
M.S., Illinois Inst. of Tech.
MTPT
- Barrett, Valerie A.
M.D., Univ. of Chicago
MED
- Barron, John T.
Ph.D., U. of Cincinnati
MED
- Barron, John W.
M.D., Loyola U. of Chgo.
MED
- Barrows, William H.
M.D., Univ. of Chicago
PED
- Barry, Diana
M.B.A., Rosary College
CNTR
- Bartels, Stephanie A.
M.D., U. of Illinois-Chgo.
MED
- Bartlett, Robert
Ph.D., West Germany
MED
- Barton, John J.
M.D., U. of Illinois-Chgo.
OBG
- Basch, Gail M.
M.D., Chgo. Medical Sch.
PSY
- Basheeruddin, Khaja
Ph.D.
MED, BCH
- Bass, Gordon
M.M., Northwestern Univ.
HSM
- Bassuk, Angel B.
M.D., Argentina
GSUR, PED
- Basu, Shivaji
M.B.B.S., India
MED
- Batchu, Koteswara R.
M.B.B.S., India
PED
- Batmangelich, Soroush
Ed.D., Northern Ill. Univ.
PMR
- Battista, Robert A.
M.D.
OTO
- Batty, Karen N.
M.S., Northern Ill. Univ.
M/SN
- Bauer, James Dean
M.D., Univ. of Cincinnati
OBG
- Baumann, Franklin Edward
M.D., Rush University
GSUR

Alphabetical Faculty Listing

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M.D., Albany Med. Col.
OBG
- Bazan, Andrea Marie
M.D.
MED
- Beard, Melodie
B.S., U. of Southern Ind.
MTPT
- Beattie, Jeanne Louise
M.D., Rush University
MED
- Beck, Robert J.
Ph.D., U. of Illinois-Chgo.
ANAT, ORTH
- Becker, Heber Weidler, III
M.S., Calif. St. U. - Northridge
GSUR
- Becker, Lee H.
M.D., U. of Illinois-Chgo.
PSY
- Beckett, Laurel A.
Ph.D., Stanford Univ.
MED
- Beeman, Mark E.
Ph.D., Univ. of Oregon
NEU, PSY
- Behal, Rajneesh
M.D., Rush University
MED
- Behner, Kathleen G.
M.B.A., Loyola U. of Chgo.
HSM
- Behnke, Charles Richard
M.A., Northern Ill. Univ.
CDS
- Behrend, Frank L.
M.D., U. of Illinois-Chgo.
OBG
- Belizario, Evangelina
M.D., Philippines
PSY
- Belkengren, Richard
M.D., Loyola U. of Chgo.
PED
- Bell, Charles R.
M.D., Meharry Medical Col.
PED
- Bell, Karen Sue
M.D., Ohio State Univ.
MED
- Bellabarba, Carlo
M.D.
ORTH
- Bellamy, April
M.D., Howard University
PED
- Bellosa, Nora T.
M.D., Philippines
PED
- Bennett, David A.
M.D., Rush University
NEU
- Bennett, Donald R.
Ph.D., U. of Michigan
FAM, PHR
- Bennett, Stephen G.
M.D., U. of Illinois-Chgo.
FAM
- Benson, Constance
M.D., Ohio State Univ.
MED
- Benson, David
M.D., U. of Illinois-Chgo.
PSY
- Bentley, Christian Derek
M.D., Rush University
ORTH
- Benyamin, Ramsin M.
M.D.
ANES
- Beranek, George B.
M.D., Loyola U. of Chgo.
MED, FAM
- Bergen, Donna
M.D., U. of Illinois-Chgo.
NEU
- Berger, Barry W.
D.O., Chgo. Col. of Osteo.
MED
- Berger, Jack C.
M.D., Univ. of Chicago
PSY
- Berger, Jan
M.D., Loyola U. of Chgo.
PED
- Berger, Maury B.
M.D., U. of Wisconsin
MED
- Berger, Richard A.
M.D., Tufts University
ORTH
- Berliant, Sharon D.
M.D., Loyola U. of Chgo.
MED
- Berlin, Leonard
M.D., U. of Illinois-Chgo.
DIAG
- Berman, Mikhail
M.D., Ph.D., Soviet Union
MED
- Berman, Philip M.
M.D., U. of Louisville
MED
- Bernard, Bryan A
Ph.D., Louisiana St. U.
PSYC
- Berndt, Sheila M.
M.B., United Kingdom
FAM
- Berndtson, Keith R.
M.D., Rush University
FAM, PVM, RHHV
- Bernstein, Jerry M.
M.D., U. of Illinois-Chgo.
MED
- Berroya, Asuncion C.
M.D., Philippines
MED
- Berry, Robert A.
Ph.D., Illinois Inst. Of Tech.
PSYC, PSY
- Berry, Teresa E.
PED, MED
- Berry-Kravis, Elizabeth
M.D., Univ. of Chicago
PED, BCH, NEU
- Berzins, Aivars
M.D., Soviet Union
ORTH
- Betlej, Thomas M.
M.D., U. of Illinois-Chgo.
PATH
- Beverly, Bert I.
M.D., Hahnemann Univ.
PED
- Bezdek, Kathleen Jane
M.S.N., Northern Ill. Univ.
MATN
- Bezkorovainy, Anatoly
Ph.D., U. of Illinois-Chgo.
J.D., Illinois Inst. of Tech.
BCH, CNTR
- Bhandari, Angelina
M.D.
MED
- Bharani, Sakina
M.B.B.S. India
PED
- Bharati, Saroja
M.B.B.S., India
PED
- Bhoopal, Vasireddy
M.B.B.S., India
FAM
- Bhugra, Maninder K.
M.D., Wayne State Univ.
ANES
- Bi, Sucai
M.D.
MED, IMMC
- Bice, Michael K.
M.D., Australia
MED
- Bicknese, Donna
M.D., Rush University
MED
- Bielawski, Harriet A.
M.D.
FAM
- Bielinski, Kenneth B.
M.D., Chgo. Medical Sch.
DERM
- Bielitzki, Linda D.
J.D., Loyola U. of Chgo.
MTPT
- Bigger, Harold
M.D., Indiana Univ.
PED
- Billhardt, Roger A., Jr.
M.D., Loyola U. of Chgo.
MED
- Billman, Daniel O.
M.D., Hahnemann Univ.
PED
- Bindra, Akhil Pratup
M.D., Northeastern Ohio U.
MED
- Bines, Steven
M.D., Rush University
GSUR

- Binor, Zvi**
M.D.
OBG
- Bishop, Catherine L.**
B.S., Rush University
MTPT
- Bittar, Sami M.**
PLAS
- Bittar, Tarek**
M.D., Rush University
GSUR
- Bitterman, Pincas**
M.D.
PATH
- Blaauw, Bernard B.**
M.D., U. of Illinois-Chgo.
MED
- Black, Henry R.**
M.D., New York Med. Col.
PVM, MED
- Black, Jonathan**
Ph.D., U. of Pennsylvania
ORTH
- Black, Stephanie**
M.D., Temple Univ.
MED
- Blacksin, Beth A.**
M.A., U. of Wisconsin
M.S., U. of Illinois-Chgo.
CHN
- Blair, John N.**
M.D., Indiana Univ.
PED
- Blair, Kenneth M.**
M.D., Wayne State Univ.
FAM
- Blake, Wayne St. Clair**
D.O., Osteo. Med C. of Pacific
MED
- Blankenship, Marshall**
M.D., U. of Illinois-Chgo.
DERM
- Blankshain, Richard H.**
M.D., U. of Illinois-Chgo.
OBG
- Blase, Rebecca Lynn**
M.S., Rush University
MATN
- Blatt, David E.**
M.D., Geo. Washington U.
MED
- Blatter, Pamela**
M.S.N., Loyola U. of Chgo.
M/SN
- Blazek, Ed Robert**
Ph.D., S.U.N.Y. at Buffalo
RADO, MPH, BCH
- Bleck, Phyllis C.**
M.D., Rush University
GSUR
- Blesch, Karen Smith**
M.S., Northern Ill. Univ.
M/SN
- Bliss, David F.**
M.A., Univ. of Chicago
M.B.A., U. of Illinois-Chgo.
HSM
- Block, Joel A.**
M.D., Washington Univ.
MED, BCH
- Block, Leslie J.**
M.D., Chgo. Medical Sch.
OTO
- Bloom, Allen D.**
M.D., Northwestern Univ.
GSUR
- Bloom, Kenneth J.**
M.D., Rush University
PATH
- Bloom, Patrick**
M.A., Loyola U. of Chgo.
OCC
- Bloom, Robert W.**
M.D., Rush University
PSY, PSYC
- Blum, Steven L.**
M.D., Univ. of Chicago
ANES, FAM
- Boatwright, Patricia M**
M.D., U. of Michigan
OBG
- Bobek, Christine J.**
M.S., Rush University
CHN
- Bogarin-Geymayr, Javier**
M.D.
MED
- Bohac, Cynthia K.**
B.S., Purdue Univ.
CNTR
- Boles, Carol A.**
M.D., Northwestern Univ.
DIAG
- Bolton, Edmund**
M.D., Meharry Med. Col.
MED
- Bone, Roger C.**
M.D., Univ. of Arkansas
MED
- Bonk, Ellen**
M.B.A., Univ. of Chicago
HSM
- Bonomi, Philip D.**
M.D., U. of Illinois-Chgo.
MED
- Bonomo, Steven**
M.D.
GSUR
- Boone, Sonja L.**
M.D., Northwestern Univ.
MED
- Borenstein, Martin J.**
D.O., Chgo. Col. of Osteo.
PED
- Borkgren, Marilyn W.**
M.S., Valparaiso Univ.
M/SN
- Bormes, Gregory William**
M.D., Georgetown University
GSUR
- Bormes, Thomas P.**
M.D., Loyola U. of Chgo.
UROL
- Borok, Raphael Zev**
M.D.
PATH
- Boscardin, James B.**
M.D., U. of Illinois-Chgo.
ORTH
- Bosch, Albert V.**
M.D., SPAIN
ORTH
- Bosch, Barbara Lammers**
PED
- Bosek, Marcia S.**
D.N.Sc, Rush University
M/SN, RHHV
- Boskovich, Sara Jeanette**
M.S., U. of Illinois-Chgo.
CHN
- Boublis, Cheri Paulette**
B.S., U. of Illinois-Chgo.
CNTR
- Boudeman, John Michael**
M.D., U. of Michigan
ANES
- Bourgard, Lori Lee**
Ph.D., Univ. of Arizona
P/GN
- Bowden, Edward M.**
Ph.D., Oregon State U.
NEU
- Bowser, Robert L.**
M.D., U. of Oklahoma
FAM
- Boyajian, Charles**
M.D., Northwestern Univ.
MED
- Boyd, Eugene**
PHR
- Boyer, Kenneth M.**
M.D., U. of Pennsylvania
PED, IMMC
- Boysen, Harry**
M.D., Univ. of Iowa
OBG
- Brack, Todd Robert**
D.O.
NEU
- Brackett, E. Boone**
M.D., Baylor University
ORTH
- Bradford, Laura S.**
Ph.D., Washington Univ.
MATN
- Bradley, Craig**
M.D., U. of Tennessee
PLAS
- Brady, Catherine**
M.A., National-Louis Univ.
OCC
- Brady, Marianne J.**
Ph.D., Univ. of Kentucky
PSYC
- Braithwaite, Susan S.**
M.D., Univ. of Chicago
MED
- Brandley, Brian**
PHR

Alphabetical Faculty Listing

- Brandon, Eden Dionne
M.D., Northwestern Univ.
MED
- Branshaw, Philip Andrew
M.D., Northwestern Univ.
MED
- Brar, Rupinder S.
M.B.B.S.
MED
- Braun, Bennett G.
M.D., U. of Illinois-Chgo.
PSY
- Braun, Donald
Ph.D., U. of Illinois-Chgo.
MED, IMMC
- Braun, Leonard L.
M.D., Rush University
PED
- Braun, Lynne
Ph.D., U. of Illinois-Chgo.
M/SN
- Braverman, Nathan Alan
M.D., Northwestern Univ.
GSUR
- Braxton, Jeffrey M.
M.D., U. of Michigan
GSUR
- Bray, James B.
M.D., Loyola U. of Chgo.
OBG
- Brazis, Peter T.
M.D.
OPHT
- Brazley, Marsha Jane
M.D., U. of Illinois-Chgo.
PED
- Breal, Phyllis Schwartz
MED
- Bredikis, Audrius Jureis
M.D.
MED
- Bremer, James W.
Ph.D., Baylor University
IMMC
- Brennan, Frank R..
BCH
- Brennan, Marjorie P.
M.D., U. of Michigan
ANES
- Brennan, Terry E.
M.D., Duke University
DERM
- Brenski, Amy C.
M.D., Rush University
OTO
- Breuhhaus, Herbert C.
M.D., Rush University
MED
- Brill, John H.
M.D., Ohio State Univ.
MED
- Britt, Chandra Lauren
M.D.
FAM
- Broadbent, Michael
Ph.D., U.C.L.A.
MPH
- Brocks, Dietrich
Ph.D., West Germany
BCH
- Brody, Jacob A.
M.D., S.U.N.Y. Downstate
PVM
- Bromberg, Merrick J.
D.O., Chgo. Col. of Osteo.
PED
- Bronsted, Rebecca K.
M.S., Rush University
M/SN
- Brooks, Michael
M.A.
P/GN
- Broome, Marion
Ph.D., Univ. of Georgia
MATN
- Brosnan, Hannah
M.S., Rush University
M/SN
- Brown, Calvin R., Jr.
M.D., Wayne State Univ.
MED, ORTH
- Brown, Dawn
M.S., U. of Illinois-Chgo.
MATN
- Brown, Douglas V.
M.D., Univ. of Chicago
ANES
- Brown, Eric Raymond
M.D., Ph.D., Rush University
OBG
- Brown, Frederick M.
M.S., Rush University
M/SN
- Brown, Linda
M.D., Med. Col. of Penna.
PED
- Brown, Maria I.
D.O., Chgo. Col. of Osteo.
FAM
- Brown, Marie T.
M.D., Rush University
MED
- Brown, Mary Elizabeth
M.D., Rush University
MED
- Brown, Max Douglas
J.D., De Paul Univ.
HSM, FAM, RHHV
- Brown, Michael D.
M.D., U. of Illinois-Chgo.
MED
- Brown, Patricia I.
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PED
- Brown, R. Gordon
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MED
- Brown, Robert W.
M.D., Baylor Col. of Med.
FAM
- Brown, William C.
M.D., U. of Cincinnati
MED
- Browning, Kenneth R.
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MED
- Brozenec, Sally
M.S., Rush University
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- Brubaker, Linda
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OBG
- Bruce, Laura Marie
M.D., Univ. of Mississippi
GSUR
- Bruehl, Stephen P.
Ph.D., Univ. of Kentucky
ANES
- Brueschke, Erich
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FAM, PHY
- Brundage, Joan
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MATN
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ORTH
- Bryant, David
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RADO
- Byrk-Serva, Deborah
M.D., Loyola U. of Chgo.
PED
- Bubula, Marilyn
B.S., Western Michigan U.
OCC
- Buch, Piyush C.
M.B.B.S., India
PSY
- Buchanan, Robert W.
M.D., U. of Nebraska
PSY
- Buchanan, Victoria C.
M.D., U. of Texas - Galv.
MED
- Bucheleres, Gunther H.
M.D., West Germany
MED, PED
- Buchman, Aron S.
M.D., Chgo. Medical Sch.
NEU
- Buck, David W.
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PSY
- Buckner, Reneau Albert
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MATN
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MED
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DERM
- Buelow, Janice
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- Buenger, Richard E.
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DIAG

- Buentello, Gloria N.
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PED
- Buhrfiend, Colleen Marie
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PED
- Buka, Jonathan
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OPHT
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M.D., U. of Illinois-Chgo.
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ANES
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MED
- Bumsted, Robert M.
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OTO
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OBG
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MED
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M.T.S., Prot. Epis. Theol.
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RHHV
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OBG
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MED
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NEUS
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CHN
- Cahill, Maureen
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MATN
- Cai, Jialing
MPH
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ANES
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OTO
- Caldwell, Richard Adley
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GSUR
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GSUR
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PSY
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ANES
- Calvin, James E.
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MED
- Camacho, Bienvenido
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FAM
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- Camacho, Pauline M.
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MED
- Cambray-Forker, E. Jane
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DIAG
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OCC
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MED
- Carandang, Godofredo C.
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MED
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- Cardwell, Anne Byrne
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OBG
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- Chen, Duan Pin
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- Chen, Meri E.
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- Chen, Shande
PVM
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- Cherny, Vladimir V.
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M.D.
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- Cianfrocca, Mary E.
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OPHT
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- Clarke, Roberta Helen
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- CVT
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PED
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PSYC, FAM
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MATN
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- Cochran, Elizabeth J.
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M/SN
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MED
- Cohen, Fredric
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PHY
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MED
- Cohen, Jack Albert
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OPHT
- Cohen, Mark S.
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- Cohen, Maynard
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NEU, BCH, PVM
- Cohen, Robert A.C.
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MED
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Ph.D., Loyola U. of Chgo.
BCH
- Cole, Edmond
Ph.D., Purdue Univ.
BCH, MED
- Coleman, Cedric L.
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MED
- Coleman, Jennifer Kaye
M.S., U. of Michigan
HSM
- Collier, Timothy
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MED
- Collins, Eileen Margaret
MED
- Collins, James J.
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MED
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M.D., Mt. Sinai Sch. Med.
ANES
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M.D., Georgetown Univ.
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- Colodny, Charles
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FAM
- Columbo, James A.
M.D., U. of Cincinnati
ANES
- Comella, Cynthia L.
M.D., U. of Cincinnati
NEU, PSYC
- Comiskey, Elizabeth M.
M.D., Indiana Univ.
- Conner, Mary
M.S., Rush University
MATN
- Connolly, Deirdre Marie
M.D., Rush University
FAM
- Connolly, Jeanine
M.D., U. of South Florida
MED
- Connolly, John E., Jr.
M.D.
DIAG
- Conroe, Henry G.
M.D., Hahnemann Univ.
PSY
- Conterato, Dean
M.D., Rush University
RADO
- Conway, Terrence
M.D., Loyola U. of Chgo.
MED
- Cook, John Q.
M.D., Northwestern Univ.
PLAS
- Cook, Richard O.
M.D., Univ. of Iowa
OBG
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M.D., Loyola U. of Chgo.
PED
- Coon, John S., IV
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Ph.D., Univ. of Chicago
PATH, OTO
- Cooperman, Suzanne K.
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PSY
- Coran, David Lawrence
M.D., U. of Michigan
ORTH
- Corcos, Daniel M.
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NEU
- Cordero, Marco A.
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MED
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BCH
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CDS
- Cosar, Ezlem Elifce
M.D.
ANES
- Costabile, Dominic
D.O., Chgo. Col. of Osteo.
FAM
- Costanzo, Maria Rosa
M.D.
MED
- Cotler, Scott Jay
M.D., Univ. of Chicago
MED
- Cotner, Carol Lou
M.S., U. of Nebraska
CNTR
- Cottrell, Thomas L. C.
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- Coupet, Edourd
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OBG
- Couri, Brian Anthony
M.D., Southern Ill. Univ.
PMR
- Courtney, Ardith M.
NEU
- Coveny, Sara B.
M/SN
- Covici, Steven J.
M.D., Northwestern Univ.
OPHT
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M.D., Cal. St. U.-Los Angeles
GSUR
- Crandall, Sharon
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M.D., Ph.D., Univ. of Chicago
PSY, PSYC
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FAM
- Crayton, June
CHN
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MED
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M.D., Univ. of Chicago
MED
- Crist, Tammara Sue
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HSM
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FAM
- Cruz, Pamela Fran Serrano
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MED
- Cs-Szabo, Gabriella
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CHN
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- D'Angelo, Charles M.
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- D'Silva, Joseph L.
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ORTH
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ANES
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PATH
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OTO
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- DaValle, Michael J.
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NEUS
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ANES
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CDS
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ORTH
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M.D., Loyola U. of Chgo.
PED
- Good, Robert C.
M.S., De Paul Univ.
HSM
- Goodfriend, Marlene S.
M.D., Northwestern Univ.
PSY
- Goodman, Daniel J.
M.A., De Paul Univ.
PED, PSYC
- Goodman, Harold
M.D., U. of Illinois-Chgo.
PED
- Goodman, Larry
M.D., U. of Michigan
MED, IMMC
- Goodman, Michelle
M.S., Rush University
M/SN
- Gopalka, Ajay Kumar
PED
- Goranson, Nancy L.
Ph.D., Illinois Inst. of Tech.
MED
- Gore, Margaret D.
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DIAG
- Gorelick, Philip B.
M.D., Loyola U. of Chgo.
NEU
- Gorens, Marsha E.
M.D., U. of Illinois-Chgo.
OBG
- Gorski, Marie Jane
M.D., U. of Illinois-Chgo.
GSUR
- Gotoff, Samuel P.
M.D., U. of Rochester
PED
- Gottlieb, John F.
M.D., U. of Illinois-Chgo.
PSY
- Gould, Elizabeth Ann
M.S.N., Loyola U. of Chgo.
M/SN
- Gould, Victor E.
M.D., Argentina
PATH
- Gouty, Carol Ann
M.S.N., Loyola U. of Chgo.
M/SN
- Grady, Jane C.
B.A., Univ. of Chicago
HSM
- Grady, Kathleen L.
M/SN
- Graefen, Thomas Alan
D.P.M., De Paul Univ.
ORTH
- Graf, Linda
M.S.N., U. of Illinois-Chgo.
MATN
- Graf, Ronald
D.N.Sc., Rush University
MATN
- Gramlich, Lisa
ANES
- Graner, Darlene
M.A., Northern Ill. Univ.
CDS
- Grant, Mark
M.D., Med. Col. of Wisc.
FAM
- Granzotti-Isern, Maria T.
M.D., Southwestern Univ.
MED
- Green, Alexander A.
M.D., Temple University
PED
- Greenberg, Brent Geoffrey
FAM
- Greenberg, Donald H.
M.D., U. of Illinois-Chgo.
PED
- Greenberg, Michael S.
M.D., Loyola U. of Chgo.
MED
- Greenberger, Mark A.
M.D., U. of Illinois-Chgo.
MED
- Greene, Constance S.
M.D., Rush University
MED
- Greenlee, William McCathran
M.D., U. of Illinois-Chgo.
DIAG
- Greenstein, Sharon
HSM
- Gregg, Catherine E.
M.A., De Paul Univ.
HSM
- Gregoire, Mary B.
Ph.D., Kansas State Univ.
CNTR
- Gregory, Stephanie A.
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MED
- Griem, Katherine L.
M.D., Harvard University
RADO
- Grier, Ephraim
M.D., Meharry Medical Col.
OBG
- Griffin, Andrew J.
M.D., Univ. of Chicago
PED
- Griffin, Angela J.
M.D., Wayne State Univ.
MED
- Griffin, Terry L.
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MATN
- Griffiths, Stephanie
M.D., Meharry Med. Col.
OBG
- Grinblat, Enrique
M.D.
ORTH
- Grinblatt, Jeffrey A.
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MED
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MPH, RADO
- Grodzin, Charles Jason
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- Gronkiewicz, Cynthia A.
M/SN
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PED
- Groster, Richard Jeremy
OPHT
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PSYC, NEU
- Groth, Christine
B.S.M., U. of Wisc.-Stevens Pt.
MTPT
- Gruenberg, Linda
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- Gruft, James H.
M.D., Geo. Washington U.
PMR
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NEUS
- Guariglia, Perry
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PATH
- Gudmundsen, Gail
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CDS
- Guido, Barbara A.
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M/SN
- Guillory, Joel
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CVT
- Guinan, Patrick
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UROL
- Gulczynski, Barbara B.
M/SN
- Guliani, Rajinder
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MED
- Gumbel, Mary K.
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CNTR
- Gumpel, Janis A.
M.D., U. of Illinois-Chgo.
OBG
- Gunawardene, Navajeeva R.
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PED
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FAM
- Gunter, Donald Lee
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MED
- Guth, Robert W.
M.D., Rush University
FAM
- Guyette, Thomas W.
Ph.D., Univ. of Kansas
CDS
- Guynn, Vernon L.
M.D., U. of Illinois-Chgo.
GSUR
- Guzman, Gina Carminda
M.D., Rush University
MED
- Gvazdinskas, Loretta C.
B.S., U. of Illinois-Chgo.
MTPT
- Gwyer, Fred V.
M.D., Univ. of Chicago
PSY
- Gynn, Thomas N.
M.D., Loyola U. of Chgo.
MED
- Ha, Yong Soo
M.D., South Korea
PSY
- Haas, Joseph S.
OPHT
- Haber, Meryl
M.D., Northwestern Univ.
PATH
- Hackworth, Sarah G.
M.D., U. of Illinois-Chgo.
PED
- Haery, Cameron
M.D., Univ. of Miami
MED
- Hafeez, Abdul
M.B.B.S.
MED
- Hafiz, Irfan
M.D.
MED
- Haggerty, Stephen P.
GSUR
- Hahn, Elizabeth A.
M.A., U. of Arizon
PSYC
- Hahn, Jerome J.
M.D., U. of Illinois-Chgo.
PVM, HSM, MED
- Hahn, Kyung O.
M.D., South Korea
PED
- Hahn, Susie
M.D., U. of Illinois-Chgo.
OPHT
- Hakimian, David
M.D., U. of Illinois-Chgo.
MED
- Hale, Stacie L.
M.A., Northern Mich. U.
CDS
- Haley, Ronald G.
M.D., Northwestern Univ.
GSUR
- Hall, Yolanda F.
M.S., Illinois Inst. of Tech.
PVM
- Halper, Ira S.
M.D., Northwestern Univ.
PSY
- Halstead, Lois A.
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MATN
- Halvorson-Kuczvara, Lori A.
M.S., Rush University
CDS
- Ham, Jongwook
M.D., U. of Illinois-Chgo.
GSUR
- Hamada, Susan Emiko
M.D, Chgo. Medical School
MED
- Hamadeh, Muhammad M.
M.D.
MED
- Hamb, Aaron
M.D., Rush University
MED
- Hameed, Yusuf H.
M.D.
ANES
- Hamel, Ronald P.
Ph.D., Fordham Univ.
RHHV
- Hammerberg, Kim
M.D., U. of Illinois-Chgo.
ORTH
- Hamming, Nancy A.
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OPHT
- Han, Kyoung
M.D.
MED
- Han, Sang Jo
M.D., South Korea
PED
- Hanashiro, Paul
M.D., Univ. of Maryland
MED
- Hancock, Beverly J.
M.S., Rush University
M/SN
- Hankins, Jacqueline
M.S., Rush University
CNTR
- Hanna, Brian D.
M.D.
PED
- Hanna, Wafik A.
M.B.B.C., Egypt
OTO
- Hanni, John W.
M.D., Univ. of Chicago
PSY
- Hantsch, Theresa A.
M.D., Northwestern Univ.
PED
- Haralampopouls, Harry
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GSUR
- Hardin, Peter Boswell
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RADO
- Harris, Alan A.
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MED, PVM
- Harris, Charles R.
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PSY
- Harris, Charlotte A.
M.D., Cornell Univ.
MED
- Harris, George F.
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PED
- Harris, Jules E.
M.D., Univ. of Toronto
MED, IMMC
- Harris, Max L
M.D., Rush University
MED
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Ph.D., U. of Kansas
OCC ,BCH
- Harris, Thomas V.
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MED
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GSUR
- Harrison, William H.
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BCH, NEU
- Hartlage, Shirley S.
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PSYC, PSY
- Hartman, David
Ph.D., U. of Illinois-Chgo.
PSYC
- Hartman, Edith
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PSY
- Hartmann, J. Francis
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NEU
- Harvey, Ann
M/SN
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OBG
- Hasan, Samer Saadat
M.D., Ph.D., Vanderbilt U.
ORTH
- Hascall, Vincent C.
BCH
- Hashem, Waddah J.
M.B.B.S.
PED
- Hasler, Scott Garner, III
MED

- Hass, George
M.D., Harvard University
PATH
- Hasta, Fakhruddin
M.B.B.S.
MED
- Hatoum, Nawar
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OBG
- Hatton, Jean
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- Hattori, Steven M.
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FAM
- Hatz, Marilyn D.
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SUR
- Hauselmann, Hans Jorg
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BCH
- Haut, Allyson, E.
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PSYC, PMR
- Hayashi, James A.
Ph.D., U. of Wisconsin
BCH
- Hayden, William R.
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PED
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- Hayes, Ernest A.
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OBG
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CHN
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- Heck, Robert S.
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FAM
- Hedberg, C. Anderson
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MED
- Hedge, Poornima U.
M.B.B.S.
PATH
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HSM
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M.D., S.U.N.Y. at Binghamton
OBG
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M.D., Mt. Sinai Sch. of Med.
- Hejna, Michael John
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ORTH
- Hejna, William F.
M.D., Washington Univ.
ORTH, HSM
- Heller, Floyd N.
M.D., U. of Illinois-Chgo.
ANES
- Heller, Paul
M.D., Czechoslovakia
MED
- Henderson, Lee W.
M.D., U. of Pennsylvania
MED
- Hendey, William S.
Ph.D., Wright State Univ.
PHR
- Hendler, Samuel
M.D., U. of Illinois-Chgo.
PSY
- Hendrickson, Frank R.
M.D., Thomas Jefferson U.
RADO, MPH
- Henikoff, Leo M.
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PED, MED
- Hennessey, Joseph John
M.D., Rush University
MED
- Hennessey, Ryon Michael
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ORTH
- Hennigan, Shawn Patrick
M.D., Temple University
ORTH
- Henry, Mike A.
M.D., Indiana Univ.
OBG
- Herba, Edward J.
M.D., U. of Manitoba
NEU
- Herdegen, James
M.D., Univ. of Chicago
MED
- Herden, Danna K.
M.A., U. of Illinois-Chgo.
CDS
- Heredia, Raul
B.S., Mexico
PATH
- Herman, Anne H.
M.S., U. of Wisconsin
CDS
- Herman, Gail D.
M.D., U. of Illinois-Chgo.
MED
- Hernandez, Beatrice M.
M.D., U. of Illinois-Chgo.
MED
- Hernandez, Fernando
M.D., Rush University
MED
- Heroux, Alain L.
M.D.
MED
- Herrera, Cesar J.
M.D.
MED
- Herrera, Patricia
M.D., Univ. of Iowa
MED
- Herrmann, Christine Amm
P/GN
- Hertko, Leonard
M.D., St. Louis Univ.
MED
- Hertz, Brian
M.D., U. of Michigan
FAM
- Hertz, Gabor
M.D., Cal. St. U. - Los Angeles
PATH
- Herwick, Paul Q.
M.D., George Washington U.
GSUR
- Heydemann, Peter
M.D., U. of Illinois-Chgo.
PED, NEU
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ANES
- Hickey, Margaret
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- Higgins, Phillip A.D.
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OBG
- Hill, David
M.S., Southern Ill. Univ.
CDS
- Hill, James P.
M.S., Loyola U. of Chgo.
HSM
- Hines, David W.
M.D., Rush University
MED, PATH
- Hinojosa, Jorge A.
M.D., Bolivia
OTO
- Hinrichs, Bradley
M.M., Northwestern Univ.
HSM
- Hirsch, Alan R.
M.D., U. of Michigan
PSY
- Hirsch, Daniel J.
M.D., Stanford Univ.
MED

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FAM
- Hirsen, Daniel J.
M.D., U. of Pittsburgh
MED
- Ho, Lucy Hsiaodin
M.D., Univ. of Chicago
MED
- Hobbs, John
M.D., U. of Minn.-Morris
OBG
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M.D., Wayne State Univ.
UROLOG
- Hoeksema, Tammo
M.D., Netherlands
CVT
- Hoeltgen, Thomas M.
M.D., Northwestern Univ.
MED
- Hoepfner, Jo-Ann L. B.
Ph.D., Univ. of Waterloo
PSYC
- Hoepfner, Thomas J.
Ph.D., McMaster Univ.
NEU, PHY
- Hoersch, Michelle D.
M.S., DePaul University
PVM
- Hoffmann, Mark Douglas
M.D., U. of Illinois-Chgo.
DERM
- Hoffman, Rebecca S.
M.D., Rush University
IMMC
- Hogstrom, Valentine E.
M.D.
FAM
- Hoiberg, Ronald B.
M.S., Wayne State Univ.
MTPT
- Holden, Joan
M.S., Rush University
M/SN
- Holemon, Lance D.
M.D., Univ. of Missouri
PSY
- Holevar, Michele Renee
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GSUR
- Holinger, Paul C.
M.D., Chgo. Medical Sch.
PSY
- Hollenberg, Steven M.
M.D., Amherst University
MED
- Hollinger-Smith, Linda
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M/SN
- Holmes, George B., Jr.
M.D., Yale University
ORTH
- Holmes, Margaret Etta
M.H., Columbia Univ.
MED
- Holmes, William H.
D.D.S., Northwestern Univ.
GSUR
- Holy, Linda Hughey
OBG
- Homan, Diane D.
M.D., Indiana Univ.
FAM
- Homandberg, Gene
Ph.D., U. of South Dakota
BCH
- Hong, Suzette Catherine
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ANES
- Hopkins, William M.
M.D., Loyola U. of Chgo.
GSUR
- Hopkinson, James F.
MPH
- Horn, Lisa Jean
D.P.M., Scholl Col. Pod. Med.
- Hornbach, Erich E.
GSUR
- Horton-Deutsch, Sara L.
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P/GN
- Horwitz, Irwin D.
M.D., U. of Illinois-Chgo.
OTO
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M.D., Chgo. Medical Sch.
OTO
- Hoskin, Francis C. G.
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BCH
- Hou, Susan H.
M.D., U. of Massachusetts
MED
- Houlihan, Jean Marie
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MED
- Howey, Diane D.
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- Hoyer, Danuta K.
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- Hoyme, Kermit
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UROLOG
- Hoyt, Howard
M.S., Univ. of Oregon
CDS
- Hsia, Linda
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PED
- Hsu, Bradford T.
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GSUR
- Hsu, Norris W.
M.D., Ohio State University
MED
- Huang, Diana
Ph.D., U. of Michigan
IMMC, MED
- Huang, Tien-Shew William
RADO
- Hubbard, Lincoln
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MPH
- Huber, Janice F.
M.D., Rush University
MED
- Huck, Bruce H.
M.D., Rush University
MED
- Huckman, Michael S.
M.D., St. Louis Univ.
DIAG, NEU
- Huerta, Susan
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M/SN
- Huggins, Pamela Jean Byron
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ANES
- Hughes, Cynthia J.
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OCC
- Hughes, W. Franklin
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ANAT, OPHT
- Hughes, William F.
OPHT
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PSY
- Hulcher, Julia M.
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PSY
- Humowiecki, Stephen R.
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FAM
- Huna-Calandra, Marcia
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CHN
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- Hunter, James R., Jr.
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IMMC
- Hunter, James A.
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CVT
- Hunter-Smith, Daniel G.
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FAM
- Hurst, Patricia Bull
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ORTH
- Husayni, Tarek S.
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PED
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PSY

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MED
- Husseini, Salah G.
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MED
- Hussey, Michael Jude
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MED
- Hutchins, Bradley F.
CDS
- Hutchinson, James C.
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OTO
- Hutchinson, Janice
M.D., U. of Cincinnati
PED
- Hwang, David Seung-Hyun
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- Hyde, John S.
M.D., U. of Illinois-Chgo.
PED
- Hyman, Bruce David
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- Ichniowski, Richard F.
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OBG
- Iglesia, Cheryl
OBG
- Ignaczewska, Anna M.
PED
- Ilbawi, Michel N.
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CVT
- Iliadis, Elias A.
MED
- Illuri, Rekha R.
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HSM
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- Immergluck, Lilly H.
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PATH
- Ingkanisorn, Sukunya S.
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PED
- Ivankovich, Anthony
M.D., Yugoslavia
ANES
- Ivankovich, Daniel Anthony
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ORTH
- Ivankovich, Olga
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FAM
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PSY
- Ivanov, Rada I.
M.D.
MED
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PED
- Iyer, Kishore Ramakrishna
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GSUR
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ORTH
- Jacker, Michael H.
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ORTH
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- Jackson, Cheryl L.
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- Jackson, Karen A.
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MED
- Jacob, Susan K.
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ANAT
- Jacobi, Angela
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MATN
- Jacobs, James S.
RADO
- Jacobs, Joshua J.
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ORTH
- Jacobson, Phillip A.
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PED
- Jaffe, Charles M.
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PSY
- Jaffee, Jay B.
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ANES
- Jagmin, Marianne
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M/SN
- Jagodzinski, Benjamin
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OBG
- Jaharis, Steven M.
M.D., Tufts University
FAM
- Jaiarj, Parnjai
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PSY
- Jaimovich, David G.
M.D.
PED
- Jain, Ruchika
M.B.B.S.
PED
- Jakate, Shriram M.
M.B.B.S., India
PATH
- James, Norman M.
M.D., Cornell Univ.
MED
- Jamieson, Rodney A.
M.D., Northwestern Univ.
MED
- Jamison, Dianne
M.S., U. of Illinois-Chgo.
CHN
- Jankowski, Mary Ellen
M.S., Northern Illinois U.
NMED
- Janus, Linda M.
M.D., Loyola U. of Chgo.
OBG
- Jaoraroenkul, Thiti
M.D., Thailand
MED
- Jaros, Mark L.
B.S., Univ of Nebraska
MTPT
- Jaworski, Carol Maddox
CDS
- Jaworski, Stanley D.
M.B.A., Northeastern U.
HSM
- Jefferson, Brenda L.
FAM
- Jellinek, Leslie A.
M.A., U. of Michigan
M.S., Rush University
HSM
- Jelsma, Peter Franklin
M.D., Northwestern Univ.
PATH
- Jendro, Thomas A.
M.B.A., De Paul Univ.
HSM
- Jennings, Terese
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PED
- Jensen, Donald M.
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MED
- Jensen, Judd M.
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NEU
- Jensen, L. Dean
ORTH
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CVT
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MED
- John, Robert B.
D.D.S., U. of Illinois-Chgo.
GSUR
- John, Viju Titus
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MED
- Johnson, Beth L.
M.D., U. of Minnesota
PATH
- Johnson, Bruce C.
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PSY
- Johnson, Frank R.
M.D., Northwestern Univ.
GSUR, PED
- Johnson, Karen Christine
Ph.D., Baylor University
CDS
- Johnson, Kathleen H.
M.D., Rush University
PSY
- Johnson, Margery R.
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PSY
- Johnson, Marilyn A.
Ph.D., U. of Pennsylvania
PSYC
- Johnson, Mark Edward
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- Johnson, Mary E.
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P/GN
- Johnson, Maryl R.
M.D., U. of Iowa
MED
- Johnson, Matthew Todd
M.D.
FAM
- Johnson, William A.
M.D., Univ. of Chicago
MED
- Jokich, Michael D.
M.D., U. of Illinois-Chgo.
DIAG
- Jones, Elizabeth C.
M.D., Tulane Univ.
PED
- Jones, Frank A. D.
M.D., Italy
PSY
- Jones, Frank W.
M.D., Northwestern Univ.
MED
- Jones, Jerry Lynne
M.P.H., U. of Illinois-Chgo.
MED
- Jones, Paul J.
M.D., Rush University
OTO, CDS
- Jones, Philip N.
M.D., Washington Univ.
MED
- Jordan, Robert A.
M.D., Rush University
PED
- Joseph, John R.
M.D., Meharry Medical Col.
ANES
- Joyce, Cathy Lynn A.
M.D., Chgo. Medical Sch.
PED
- Juarez, Silvia
M.D., U. of Cal.-San Diego
- Justesen, Chad R.
NEUS
- Kachoris, Paul J.
M.D., Indiana Univ.
PSY
- Kaganiec, Irene G.
M.D., West Germany
MED
- Kahn, Geralynn
M.D., SUNY at Buffalo
PVM
- Kaiser, James A.
C.P. Northwestern Univ.
PMR
- Kaizer, Herbert
M.D., Stanford Univ.
Ph.D., Boston University
PED, IMMC, MED
- Kakodkar, Vasundhara
M.B.B.S., India
PED
- Kalawadia, Sejal Kantilal
M.D., Jefferson College
MED
- Kale, Scott A.
M.D., Chgo. Medical Sch.
MED
- Kaliana, Muthukumaran
M.D., India
PED
- Kalis, John B.
M.D., Rush University
DERM
- Kallal, Catherine A.
M.D., Loyola U. of Chgo.
MED
- Kallick, Charles
M.D., U. of Illinois-Chgo.
PED, MED, PVM
- Kaltman, Jerome
M.D., U. of Cincinnati
PED
- Kaminski, Ludwig
M.D., Poland
MED
- Kanaris, Mark
M.D., Greece
FAM
- Kandpal, Sangeeta
M.B.B.S.
PED
- Kane, Richard Aaron
M.D., Rush University
DIAG
- Kang, Christina
M.S., Rush University
M/SN
- Kang, David S.
Ph.D., South Korea
PED
- Kang, Hyuk J.
M.D., Univ. of Chicago
RADO
- Kang, Kooil
Ph.D., Rush University
BCH
- Kang, Sunghye Jenny
M.D., Rush University
MED
- Kang, Yong
M.D.
BCH
- Kannam, Srilatha
M.D., Univ. of Iowa
DIAG
- Kannan, Chakravarthy
M.D., Indonesia
MED
- Kanner, Andres M.
M.D.
NEU, PSY
- Kantutis, Connie A.
B.S., U. of Illinois-Chgo.
HSM
- Kao, Walter G.
M.D., Cornell Univ.
MED
- Kaplan, Edward H.
M.D., Loyola U. of Chgo.
MED
- Kaplan, Sidney
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DERM
- Kapoor, Febe Deepak
M.S., Rush University
P/GN
- Kapral, Jane
M.D., Wayne State Univ.
PED
- Karas, Ilias N.
M.D., Greece
OTO
- Karavattuveetil, Reeni
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DIAG
- Kark, Robert M.
F.R.C.P., United Kingdom
MED
- Karlin, Karyn H.
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NEU
- Karrel, Richard
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MED, PSY
- Kartha, Ponnunni K. I.
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RADO, MPH

- Kasdorf, Karin E.
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HSM
- Katsamakos, George
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NEU
- Katz, Jerome I.
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PSY
- Katz, Marcia R.
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FAM
- Katz, Robert S.
M.D., Univ. of Maryland
MED
- Kaufman, Barry D.
M.D., Penna. State U.
PVM
- Kaur, Suman
M.D.
MED
- Kaushal, Satya P.
M.B.B.S., India
ORTH
- Kavinsky, Clifford Jay
M.D., Rush University
Ph.D., Univ. of Chicago
MED
- Kaye, Bennett A.
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PED
- Kaye, Celia
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Ph.D., Northwestern Univ.
PED
- Kazaniwskyj, Lubomyra
D.O., Chgo. Col. of Osteo.
FAM
- Kazlauskas, Theresa
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PED
- Keane, John T.
M.D., Loyola U. of Chgo.
DERM, PATH
- Kearns, Michael J.
HSM
- Keenan, Ann Marie
M.S., Rush University
M/SN
- Keers, Suzanne
M.B.A., U. of Illinois-Chgo.
HSM
- Keflemariam, Yodit J.
M.D.
OBG
- Keh-Wong, Elisa S.
M.D., Philippines
ANES
- Kehoe, Richard F.
M.D., Northwestern Univ.
MED
- Kehoe, William R.
M.D., Loyola U. of Chgo.
MED
- Keith, L.E.
M.D., Harvard University
PED
- Keithley, Joyce
D.N.Sc. Rush University
M/SN
- Kelanic, Stephen Michael
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OTO
- Kelleher, Leon R.
D.D.S., U. of Illinois-Chgo.
GSUR
- Kelly, Frank B., Jr.
M.D., Univ. of Chicago
MED
- Kelly, Frank C.
M.D., Chgo. Medical Sch.
MED
- Kelly, Jonathan
M.D., S.U.N.Y. Upstate
PSY
- Kelly, Michael A.
M.D., Loyola U. of Chgo.
NEU
- Kelly, Patricia J.
M.S., Pace University
M.P.H., Columbia University
CHN
- Kelsey, John G.
M.D., Ohio State Univ.
MED
- Kemp, Mildred G.
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M/SN
- Kempster, Gail B.
Ph.D., Northwestern Univ.
CDS
- Kenamore, Bruce D.
M.D., U. of Missouri
MED
- Kennelly, Christine
M.S., Georgia State Univ.
MATN
- Kent, Jeffrey David
M.D., Jefferson College
MED
- Kenton, Kimberly Sue
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OBG
- Kenton, Lorry
M.S.N., Univ. of Colorado
P/GN
- Kerchberger, John P.
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ANES
- Kernizan, Marie M.
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FAM
- Kerns, James M.
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ANAT
- Kessel, Kenneth F.
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FAM
- Kessler, Harold A.
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IMMC, MED
- Khan, Saeed
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MED
- Khanna, Priti
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PMR
- Khayami, Deena A.
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IMMC
- Kherdekar, Anjali S.
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- Khodadad, Jena
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- Khorasani, Arjang
M.D.
ANES
- Khurana, C. Mohini
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PED
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PED
- Kierney, Catherine M. P.
ANES, PED
- Kijek, Barbara G.
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PED
- Kilaru, Prasad
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MED
- Kiley, R. James
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PED
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MATN
- Killingsworth, Deborah
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MED, MPTT
- Kim, Dennis Dongwon
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MED
- Kim, Joo Woo
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MED
- Kim, Ju Hyun
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PED
- Kim, Myung Ho
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- Kim, Sun-Bum
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- Kimber, Nancy Diane
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OBG
- Kimura, Robert E.
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M.B.B.S.
MED
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MED
- Kinney, Janet
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- Kintanar, Felismeno
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- Kirk, Jennifer Kirsten
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SUR
- Kirkland, Wallace W.
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MED
- Kirrin, Alex J.
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PED
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OBG
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DIAG
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- Kirz, Donna S.
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OBG
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- Kizilbash, Nava
PATH
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M.D., U. of Illinois-Chgo.
NEU
- Klein, Joel S.
M.D., Chgo. Medical Sch.
MED
- Klein, Lloyd W.
MED
- Kleinpell, Ruth M.
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FAM
- Klimas-Osolkowski, Katarzy
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ANES
- Klodd, David A.
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OTO, CDS, PED
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- Kluft, Richard P.
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- Kluskens, Larry F.
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PATH
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M.S., Ohio State Univ.
HSM
- Knight, Raymond W.
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MED
- Knipmeyer, Jay W.
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OBG
- Knott, A. Paul, Jr.
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- Knox, Stephen P.
ANES
- Knudson, Cheryl
Ph.D., U. of Southern Cal.
BCH, PATH
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BCH, PATH
- Ko, T. S.
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- Kobak, Alfred
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OBG
- Kochhar, Kulvinder S.
MED
- Kociak, Kathleen A.
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P/GN
- Kocian, Rita M.
M.B.A., De Paul Univ.
HSM
- Koinis, Kostas E.
M.D., Greece
PED
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PED
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M.B.A., Univ. of Chicago
HSM
- Komarov, Pavel G.
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PATH
- Kominsky, Perrie
M.A., Northwestern Univ.
CDS
- Kompoliti, Aikaterini
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NEU
- Koncel, Margaret M.
CNTR
- Konior, Raymond J.
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OTO
- Koo, Jenny N.
PED
- Koop-DeSimone
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- Kopin, Jeffrey D.
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MED
- Kopp, Paula Lamm
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- Koppula, Samyukta
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IMMC
- Kopytko, Edwin E.
M.S., Rush University
P/GN
- Korbet, Stephen M.
M.D., Rush University
MED
- Kordower, Jeffrey H.
Ph.D.
NEU
- Korenblit, Allen D.
M.D., Rush University
MED
- Kornel, Ludwig
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Ph.D., United Kingdom
MED, BCH
- Kos, Berislav
M.D., Yugoslavia
OBG
- Koso-Thomas, Akintunde K.
M.B.B.S.
PATH
- Kot, Eva
M.S., Northwestern Univ.
BCH
- Kotin, Anthony M.
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MED
- Koukoulis, George
M.D.
PATH
- Kovel, Barbara A.
M.M., Northwestern Univ.
HSM
- Koveleski, Jules T.
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NEU
- Kowalczyk, Joseph Anthony
M.D., Rush University
MED
- Kowalski, Karren
Ph.D.,
MATN
- Koyano, Yasuhiko
M.D.
BCH
- Kraft, Margaret
M.S.
P/GN

- Krakora-Looby, Janice
M.D., Rush University
PED
- Kramer, Jane E.
M.D., Northwestern Univ.
PED
- Kramer, Nikki
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M/SN
- Kramer, Toby
M.D., U. of Illinois-Chgo.
RADO
- Krasnow, Sheldon E.
M.D., U. of Illinois-Chgo.
MED
- Krause, Mary Katherine
M.S., Rush University
HSM
- Krause, Philip B.
M.D., Chgo. Medical Sch.
MED
- Kravitz, Howard
D.O., Chgo. Col. of Osteo.
PSY
- Kravitz, Rhonda
M.S., Rush University
P/GN
- Krawczyk, John G.
M.D.
PSY
- Kreiter, Mary L.
M.D., U. of Illinois-Chgo.
PED
- Kremer, Michael John
M.S.N., Seattle Pacific Univ.
M/SN
- Krickl, Donna K.
M/SN
- Krieger, Richard Paul
M.D., Rush University
PMR
- Kroger, Elliott
M.D., Rush University
MED
- Kroin, Jeffrey S.
Ph.D., U.C.L.A.
NEUS, PHY
- Krolick, Thomas J.
M.D.
ANES
- Kruckmeyer, Warren G.
M.D., Rush University
FAM
- Krueger, Barbara L.
M.D., Emory University
GSUR
- Kruse, Donna K.
M.S.N., Northern Ill. Univ.
M/SN
- Kucich, Vincent
M.D., S.U.N.Y. Downstate
CVT
- Kudelka, Anne Marie
M.D., Rush University
MED
- Kuenn, Julianne M.
M.S., Natl. Col. of Educ.
HSM
- Kuettner, Klaus E.
Ph.D., Switzerland
BCH, ORTH
- Kulkarni, Nita M.
OBG
- Kull, Laura
M.S., Rush University
M/SN
- Kulwin, Maury H.
HSM
- Kumar, Aparna
M.D.
PED
- Kumar, Ramesh T.
PED
- Kumar, Surender
M.B.B.S.
MED
- Kummerer, Robert Gerard
M.D., Rush University
CVT
- Kunstle, John J.
M.D., Univ. of So. Dakota
- Kuo, Ken Nan
M.D., Taiwan
ORTH
- Kurtzer, Traci Armer
M.D., Univ. of Florida
OBG
- Kurtzman, Daniel M.
OTO
- Kut, Joseph L.
M.D., Loyola U. of Chgo.
PSY
- Kuyzin, Lanis L.
M.D., Northwestern Univ.
MED
- Kuznetsky, Kenneth A.
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MED
- Kwan, Sau-Ping
M.D., Ph.D., U. of Cincinnati
IMMC
- Kwasnik-Krawczyk, Anne
FAM
- Kwiczinsky, Michael
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MED
- La Marre, Arthur G.
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MED
- LaMothe, Joseph L.
M.D., U. of Minnesota
FAM
- LaRochelle, Diane R.
M/SN
- Labotka, Richard J.
M.D., U. of Illinois-Chgo.
MATN
- Labriola, Rose
M.S., St. Xavier College
M/SN
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M/SN
- Lacuesta, Evelyn A.
M.D.
MED
- Lafferty, Cheryl M.
M.S., Rush University
P/GN
- Lafferty, Linda
Ph.D., Univ. of Missouri
CNTR
- LaFollette, Suzanne
M.D., Rush University
MED
- Lai, Joseph C.
M.B., Taiwan
ANES
- Lai, Lawrence R.
M.D., Taiwan
PED
- Lai, Tai Min
M.D., Taiwan
ANES
- Laluya, Joseph P.
D.O.
PMR
- Lam, Ing-Ing
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PSY
- Lamb, Karen
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P/GN
- Lambur, James A. K.
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ORTH
- Landay, Alan
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IMMC, MED, MTPT
- Landgarten, Michael Jay
MED
- Lane, Harold J.
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PSY
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OCC
- Lang, David J.
D.O., Chgo. Col. of Osteo.
ANES
- Lang, Gordon
M.D., S.U.N.Y. at Buffalo
MED
- Lang, Zhihui
Ph.D., Rush University
PED
- Lange, Yvonne
Ph.D., United Kingdom
PATH, BCH
- Langiewicz, Janina
M.D.
PED
- Lanigan, Kathleen
M.S., Rush University
M/SN
- Lanzl, Lawrence H.
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RADO, MPH
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M.D., U. of Illinois-Chgo.
ANES
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OBG

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GSUR
- Latzko, Karen M.
D.O.
UROL
- Lauderdale, Vance, III
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MED
- Lauer, Mary K.
M.N., Univ. of Washington
M/SN
- Lavender, Steven
Ph.D., Ohio State Univ.
ORTH
- Lawin, Penny Jo
M.D., Rush University
ORTH
- Lawrence, Kirsten Elizabeth
M.D., Univ. of Connecticut
GSUR
- Lawson, Clyde
M.D., Meharry Medical Col.
OBG
- Lawson, Leonard J.
M.D., Meharry Medical Col.
OBG
- Lawton, Steven R.
M.D., Northwestern Univ.
FAM
- Layfer, Lawrence
M.D., Rush University
MED
- Lazarus, Lawrence W.
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PSY
- Le Sage, Joan
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P/GN
- LeSage, Timothy B.
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- Leavitt, Frank
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PSYC
- Leavitt, Jacqueline Debora
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MED
- Lecher, William T.
M.B.A., M.S., U. of Ill.-Chgo.
M/SN
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M.D., Univ. of Virginia
NEUS
- Lee, Chang Bok
M.D., South Korea
OPHT
- Lee, Myung-Sook
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RADO, MPH
- Lee, Robert J.
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- Lee, Timothy Song
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HSM
- Leff, Joel R.
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- Leiken, Jerrold
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MED
- Leksas, Linda
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PVM
- Lemons, James A.
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GSUR
- Lemper, Brian Anthony
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- Lenting, Eric L.
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UROL
- Lenz, Mary Ellen
M.S., Univ. of Kansas
BCH
- Lenz, Richard F.
ANES
- Leonard, Sherald
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PED
- Leong, Fah Che
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OBG
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HSM
- Lerrick, Andrew J.
OTO
- Leslie, William T.
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MED
- Lessick, Mira
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MATN
- Lettieri-Marks, Donna
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P/GN
- Leurgans, Sue
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PVM
- Leven, Robert M.
Ph.D., U. of Pennsylvania
ANAT, MED
- Levenberg, Pat
M.S., Univ. of Colorado
MATN
- Levin, Daniel Eric
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- Levin, Igor
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ANES
- Levin, Jay L.
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ORTH
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- Levin, Rachel Kwartowski
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- Levin, Robert D.
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- Levin, Robert M.
M.D., Univ. of Missouri
PED
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MED, IMMC, PVM
- Levine, Laurence Adan
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UROL
- Levine, Milton
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PVM
- Levine, Stanley R.
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UROL
- Levinthal, Daniel Joseph
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- Levis, Richard A.
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PHY
- Levitan, Kenneth M.
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PSY
- Levitan, Ruven
M.D., Israel
MED
- Levitan-Dani, Miriam Michelle
GSUR
- Levitt, Leonard
M.D., Rush University
DERM
- Levy, Barry E.
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- Levy, Howard B.
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MED, PED
- Levy, Robert
MED
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OPHT
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- Lewis, Edmund J.
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MED, IMMC
- Lewis, Mary
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PED
- Lewis, Rebecca Bower
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- Lewis, Rita
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- Lewis, Steven L.
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- Liao, Thomas E.
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- Libert, Samuel A.
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PSY
- Lichtenberg, Edward Steve
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OBG
- Liebson, Philip R.
M.D., S.U.N.Y. Downstate
MED, PVM
- Lim, Diosdado
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PED
- Limp, Charles
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PED
- Lin, Donghui
M.D.
PATH
- Lin, Sun Kuang
M.D., Taiwan
PED
- Lin, Yuan-Hwai
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ANES
- Lincoln, Sarah T.
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MED
- Lindgren, Robert
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OBG
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ANES
- Ljubanovic, Marijana
ANES
- Llanes, Antonieta G.
CNTR
- Llewellyn, Jane
D.N.Sc., Rush University
M/SN
- Llewellyn, John W.
Ph.D., Univ. of Chicago
PVM, RHHV
- Lloyd, Stephen R.
M.A., U. of Illinois-Chgo.
PSYC
- Lloyd-Still, John
M.B.B.S.
PED
- Lobstein, Otto E.
Ph.D., Northwestern Univ.
BCH
- Locher, Stephen R.
M.D., U. of Illinois-Chgo.
OBG
- Locke, Susan
M.D., Washington Univ.
FAM
- Loeff, Deborah S.
M.D., Rush University
GSUR
- Loew, Jerome
M.D., Einstein Sch. of Med.
PATH
- Lofchy, Neal Matthew
OTO
- Loghman-Adham, Mahmoud
M.D., France
PED
- Lokos, Constance
M.S., Rush University
P/GN
- Lollar, Ronald Herbert
B.S., Rush University
MTPT
- London, Ruth
M.D., Israel
PED
- Long, Cynthia Lynn
M.D., Case Western Res. U.
GSUR
- Long, John S.
M.D., U. of Illinois-Chgo.
OBG
- Longo, Robert John
MED
- Lopata, Linda K.
M.D., U. of Illinois-Chgo.
PED
- Lopez, Carolyn C.
M.D., U. of Illinois-Chgo.
FAM
- Lopez, Martita
Ph.D., Syracuse University
PSYC, PMR
- Lopez, Octavio M.
MED
- Lord, Richard W.
M.D.
FAM
- Lorence, Robert
Ph.D., U. of Illinois-Cham/Urb.
PATH
- Lorenzo, Aileen deLeon
M.D.
MED
- Lovallo, William R.
PSY, PSYC
- Lozano, Cosme Oziel, Jr.
M.D., Southern Ill. Univ.
PSY
- Lubenow, Timothy R.
ANES
- Lubicky, John Peter
M.D., Thomas Jefferson U.
ORTH
- Luborsky, Judith L.
Ph.D., SUNY at Albany
OBG
- Lucente, Tracy
M.P.H., U. of Illinois-Chgo.
P.V.M.
- Luke, Alan Richard
M.D., Rush University
OBG
- Lukens, Abbie R.
M.D., Univ. of Chicago
PED
- Lunde, Mark
M.D., U. of Illinois-Chgo.
OPHT
- Luo, Frederic F.
M.D., U. of Wisconsin
MED
- Lupovitch, Steven D.
M.D., U. of Michigan
MED
- Lurain, Nell S.
Ph.D., Loyola U. of Chgo.
IMMC, MED

Alphabetical Faculty Listing

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IMMC
- Lusky, Donald H.
M.D., U. of Illinois-Chgo.
NEU
- Lydon, Jean T.
M.S., Rush University
M/SN
- Lynch, Gerald Edward
M.D., Rush University
GSUR
- Lynch, Patricia A.
M.S., Rush University
MATN
- Lynch, Priscilla
M.S., St. Xavier Col.
P/GN
- Lynn, Kelvin G.
Ph.D., University of Utah
PHY
- Lyon, Susan T.
M.D., Rush University
OTO
- Lyons, Jack D.
M.D., U. of Ill.-Cham/Urb.
DIAG
- Lyster, Michael T.
M.D., U. of Illinois-Chgo.
MED
- Lyter, David W.
M.D., Univ. of Pittsburgh
MED
- MacLeod, Catherine M.
M.D., Univ. of Manitoba
PHR, MED,
- MacMullen, Nancy
Ph.D., Loyola U. of Chgo.
MATN
- Machioch, James E.
MED
- Mack, Robert James
M.D., Case Western Res. U.
OPHT
- Mack, Stephen
Ph.D., New York University
OBG
- Macklin, Claudette M.
M.D., Rush University
MED
- Madayag, Manuel A.
DIAG
- Maddalozzo, John
OTO
- Madden, Thomas
M.B.Ch., United Kingdom
PVM, FAM, MED,
- Madhav, Gopal
M.B.B.S., India
MED
- Mael, David M.
M.D.
MED
- Mahdi, Mirza A
M.B.B.S.
ANES
- Maheshwari, Pradeep
M.B.B.S.
MED
- Mahone, Sylvia R.
M.D., Southern Ill. Univ.
FAM
- Maibenco, Helen
Ph.D., U. of Illinois-Chgo.
ANAT
- Maikler, Virginia
Ph.D., U. of Illinois-Chgo.
MATN
- Majewski, Jerome E.
DIAG
- Major, Ellen M.
PED
- Maker, Vijay K.
M.B.B.S., India
GSUR
- Makkai, Noemi
M.D., Rush University
GSUR
- Makrilakis, Konstantinos
M.D.
PVM
- Malalis, Leonardo C.
M.D., Philippines
PED
- Malhotra, Madhu
M.B.B.S., India
MED
- Malik, Farzana
M.B.B.S.
PED
- Malik, Khadija
M.B.B.S., India
MED
- Malkinson, Frederick
M.D., Harvard University
DERM
- Mallikarjun, Ashwin A.
M.B.B.S.
PED
- Mallin, Bruce A.
M.D., U. of Colorado
ORTH
- Malow, James B.
M.D., U. of Illinois-Chgo.
MED
- Maltezos, Stavros N.
M.D., Rush University
NEUS
- Manaligod, Librada J.
M.D., Philippines
PED
- Mandel, Elias
B.S., McGill University
PED
- Mangoubi, Elie
M.D., Belgium
PSY
- Manley, Steven J.
M.D., U. of Michigan
ANES
- Manshio, Dennis T.
M.D., Mexico
Ph.D., Ill. Inst. of Tech.
FAM
- Mansilla-Orihuela, Carmen
M.D.
DERM
- Manson, Sharon K.
M.S., Rush University
M/SN
- Mantooth, Mark Christopher
J.D., Boston University
HSM
- Maragos, Valerie A.
M.D., Tulane University
PMR
- Marathi, Pushpa
M.B.B.S., India
MED
- Marcarian, Gregory H.
M.D., Wayne State Univ.
MED
- March, Robert J.
M.D., Rush University
CVT
- Marchlewski, Maria B.
M.S., Rush University
P/GN
- Marchmont-Robinson, H.
M.D., U. of Pennsylvania
GSUR
- Marcus, Richard H.
MED
- Marder, Robert J.
M.D., Rush University
PATH, HSM
- Mardjetko, Steven M.
M.D., U. of Illinois-Chgo.
ORTH
- Marfell, Julie A.
N.D., Rush University
CHN
- Marinelli, Antony
M.D., Northwestern Univ.
MED
- Maripuri, Dhana L.
M.B.B.S.
MED
- Mariyappa, M. P.
D.Ch., United Kingdom
PED
- Marker, Sheri L.
M.S., Rush University
HSM
- Markey, William S.
M.D., Case Western Res. U.
MED
- Marschall, Stephanie F.
M.D., U. of South Florida
DERM
- Marshall, Roland M., III
M.D., U. of Illinois-Chgo.
PATH
- Martin, Barbara
M.S., Rush University
M/SN
- Martin, Ernesto L.
M.D.
PSY
- Martin, John E.
M.D., U. of Illinois-Chgo.
MED

- Martin, Sarah A.
M.S.N., Northwestern Univ.
MATN
- Martin, Susan
PSY
- Martirano, Michael, Jr.
M.D., Rush University
GSUR
- Marwah, Birinder S.
M.B.B.S.
MED
- Marwaha, Rakesh
M.D.
MED
- Massad, Leslie Stewart
M.D., Duke University
OBG
- Masuda, Koichi
M.D.
BCH
- Matalon, Terence A.
M.D., Boston University
DIAG
- Mathur, Virendra D.
M.D.
MED
- Mativi, Brenda Y.
Ph.D.
BCH
- Matta, Shakti Kumar
M.D.
PED
- Matthew, Guy R.
M.D., Indiana Univ.
DIAG, MED
- Matthiesen, Valerie
D.N.Sc., Rush University
P/GN
- Maturen, Andrew J.
BCH
- Matuszewski, Karl
M.S., Rush University
HSM
- Maxson, Ellen L.
M.S., St. Xavier College
P/GN
- Mayerhofer, Kenneth E.
U. of Michigan
FAM
- Mazei, Catherine A.
FAM
- Mazzone, Theodore
M.D., Northwestern Univ.
MED, BCH
- McAuley, James Bernard
M.D., Northwestern Univ.
PED
- McCabe, Mary
M.S., Rush University
M/SN
- McCann, Judith
D.N.Sc., Rush University
P/GN
- McCarron, Edward J.
M.D., Dalhousie University
PMR
- McCarthy, Patricia Ann
Ph.D., Univ. of Denver
CDS, OTO
- McCarthy, Robert J.
D.Pharm., Purdue Univ.
ANES, PHR
- McCauley, Peter W.
M.D., Univ. of Chicago
PED
- McChesney, Lawrence P.
M.D., Creighton Univ.
GSUR
- McClaskey, Margaret C.
M.A., Andover Newton Theo.
RHHV
- McCloud, Meshell Y.
M.S., Grorgia State Univ.
MATN
- McCoy, James J.
M.D., Loyola U. of Chgo.
FAM
- McCoyd, Kevin
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NEU
- McCreary, Patricia A.
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PVM, MED
- McCulloch, Catherine S.
M/SN
- McDade, Sarah Bethany
M.D., U. of Illinois-Chgo.
PMR
- McDonald, Virginia
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DIAG
- McDunn, Susan H.
M.D., Rush University
MED
- McFolling, Sandra
M.S.N., U. of Illinois-Chgo.
CHN
- McGinness, Catherine
M.D., U. of Illinois-Chgo.
FAM
- McGrath, James M.
ANES
- McGregor, Susan G.
M.D., Loyola U. of Chgo.
PED
- McGuire, Lora
M/SN
- McHugh, Rosemary E.
M.D., Ireland
FAM
- McInerney, John
D.O., Chgo. Col. of Osteo.
OBG, MED
- McKenna, Rajalaxmi
M.D., India
MED, PHR
- McKiel Jr. Charles F.
M.D., Loyola U. of Chgo.
UROL
- McLachlan, Daniel L.
M.D., Northwestern Univ.
OPHT
- McLaughlin, Margaret
M.D., Univ. of Chicago
MED
- McLeod, Bruce C.
M.D., Harvard University
MED, PATH
- McMillan, Foster L.
M.D., U. of Illinois-Chgo.
GSUR
- McMillan, J. Charles
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MED
- McNally, Randall E.
M.D., St. Louis Univ.
PLAS
- McNeil, David
PSY
- McNeill, Thomas
M.D., U. of Illinois-Chgo.
ORTH
- McPherson, Anne T.
M.S., Northwestern Univ.
MATN
- Mead, John D.
Ph.D., Washington St. U.
PSYC, PED
- Meagher, Barbara T.
M.S., Loyola U. of Chgo.
MATN
- Meehan, Marjorie C.
M.D., Johns Hopkins Univ.
PSY
- Meeks, Steve L.
M.D., Washington Univ.
MED
- Meengs, Mary Lou
M.D., Rush University
FAM
- Megremis, David P.
D.O., Chgo. Col. of Osteo.
DIAG
- Mehlinger-Mitchell, R.
M.D., U. of Illinois-Chgo.
PSY
- Mehra, Anju
M.B.B.S., India
MED
- Mehta, Bhupatkumar N.
M.B.B.S., India
MED
- Meier, Werner
M.D., Peru
PED, OBG
- Meister, Michael D
M.D., U. of Illinois-Chgo.
ANES
- Meiszner, John W.
M.D., Loyola U. of Chgo.
PSY
- Melikian, Grigory B.
M.D.
PHY
- Melyn, Michelle
M.D., U. of Illinois-Chgo.
PED, NEU
- Mendelson, Lisa Sigg
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M/SN

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M.D.
PED
- Mengoni, Patricia
M.D., Tulane University
DIAG
- Mercer, Jeanne K.
M.D., U. of Illinois-Chgo.
PED
- Merchant, Zarina I.
PED
- Meredith, Paul A.
M.D., Northwestern Univ.
MED
- Meriggioli, Matthew N.
M.D.
NEU
- Merkel, Frederick K.
M.D., Johns Hopkins Univ.
GSUR, MED
- Merrick, Frank W.
M.D., U. of Michigan
OBG
- Merrick, Paul Franklin
M.D., Rush University
UROL
- Merricks, James W.
M.D., Rush University
UROL
- Merritt, Sharon Louise
D.N.Sc., Univ. of Missouri
- Mershon, Steven
M.D., Med. Col. of Ohio
PSY
- Merwick, Patricia A.
M.D., Northwestern Univ.
MED
- Meserow, James A.
M.D., Rush University
OBG
- Messer, Joseph V.
M.D., Harvard University
MED
- Metrick, Scott A.
M.D., U. of Illinois-Cham/Urb.
NEU
- Meyer, Dianne H.
Ph.D., Northwestern Univ.
CDS, OTO
- Meyer, Mary-Anne
M.S., Rush University
CHN
- Meyer, Nancy
M.S.N., Wayne State Univ.
P/GN
- Meyer, Peter M.
PVM
- Meyers, Francine G.
M.A., Eastern Michigan U.
CDS
- Meyers, Steven Lee
M.D., Rush University
NEU
- Micek, Wendy Tuzik
D.N.Sc., Rush University
M/SN
- Michael, Joel A.
Ph.D., Mass. Inst. of Tech.
PHY, NEU
- Michalska, Malgorzata
M.D., Poland
MED
- Miff, Stephen C.
M.D.
MED
- Mikecz, Katalin
M.D., Ph.D., Hungary
ORTH, BCH,
- Milek, David S.
M.D., U. of Michigan
ANES
- Miles, William Scott
M.D., Kansas State Univ.
PSY
- Milianti, Franklin
Ph.D., U. of Oklahoma
CDS
- Miller, Alexander W.
M.D., U. of Illinois-Chgo.
OBG
- Miller, Avery S.
Ekon., Sweden
HSM
- Miller, Debbie L.
MED
- Miller, Edwin
M.D., Loma Linda Univ.
FAM
- Miller, Herbert J.
Ph.D., Northwestern Univ.
MTPT
- Miller, Jack M.
M.D., U. of Illinois-Chgo.
OBG
- Miller, Joanne
M.S., Univ. of Chicago
P/GN
- Miller, Kenneth
PED
- Miller, Mary Ann
CDS
- Miller, Paul E.
M.D., U. of Illinois-Chgo.
ANES
- Miller, Raymond N.
M.D., U. of Illinois-Chgo.
PSY
- Miller, Robert
M.D., Va. Commonw'lth U.
ORTH
- Miller, Robert A.
M.D., Northwestern Univ.
PED
- Miller, Rodney Ross, Jr
ANES
- Miller, Shayle
M.D., U. of Illinois-Chgo.
MED
- Millikan, Keith W.
M.D., Rush University
GSUR
- Millirons, Dennis Carl
M.S., Trinity University
HSM
- Milloy, Frank J.
M.D., Northwestern Univ.
CVT
- Milshteyn, Lack L.
M.D.
ANES
- Mini, James A.
PED
- Minnick, Ann M.
Ph.D., U. of Illinois-Chgo.
M/SN
- Minton, Paula
M.S.N., Northern Ill. Univ.
M/SN
- Miskiewicz, Cezary S.
GSUR
- Misra, Sahana
M.D., Rush University
PSY
- Mital, Deepak
M.B.B.S.
GSUR
- Mitchell, Charles Wm.
PLAS
- Mitchell, Jason Scott
M.D.
ANES
- Mitra, Raman L.
M.D., Pennsylvania. St. Univ.
MED
- Mizen, Thomas R.
M.D., Chgo. Medical Sch.
OPHT, NEUS
- Mlcoch, Anthony G.
Ph.D., Purdue Univ.
CDS
- Mobasserri, Sara
MED
- Modi, Haresh
M.B.B.S., India
PED
- Mok, Meng T.
Ph.D.
BCH
- Mok, Young He
M.D., South Korea
PED
- Moline, Bryan G.
M.D., U. of Illinois-Chgo.
MED
- Moll, Keith J.
M.D., Univ. of Missouri
PED
- Mollenhauer, Jurgen
Ph.D., West Germany
BCH
- Molnar, Marija V.
M.D., Yugoslavia
OBG
- Molo, Mary Wood
M.D., Southern Ill. Univ.
OBG
- Momohara, Shigeki
M.D.
BCH
- Monaghan, Susan
M.S., Rush University
HSM

- Monroe, Clarence W.
M.D., Rush University
PLAS
- Monti, Catherine Marie
M.D., Rush University
MED
- Monti, Laura A.
Ph.D., Loyola U. of Chgo.
PSYC, NEU
- Montoya, Alvaro
M.D.
CVT
- Moolayil, Kumar D.
M.B.B.S., India
PSY
- Moon, Byong H.
Ph.D., Washington St. U.
PHR, MED
- Moore, David M.
D.O., Chgo. Col. of Osteo.
MED
- Moore, Denis Gerard
M.A., Northern Ill. Univ.
CDS
- Moore, Julie Anne
M.D., Creighton Univ.
DERM
- Mooshil, Leah Bernadette
M.D., Rush University
MED
- Morariu, Istina Eugenia
MED
- Moreland, Connie E.
M.S., Emory University
OBG
- Morgan, Marlene J.
M.S., Texas Women's Univ.
OCC
- Morgenstern, Sidney
M.D., United Kingdom
ORTH
- Moritz, Howard A.
ANES
- Morreale, Barbara
M.S., Rush University
M/SN
- Morrell, Frank
M.D., Columbia Univ.
NEU
- Morris, Clare Martha
M.S., Univ. of Iowa
MED
- Morrison, Caroline M.
M.D., Univ. of Missouri
PSY
- Morrison, David
M.D., U. of Southern Cal.
PSY
- Moses, Linda F.
OBG
- Moss, Percy C.
M.D., Meharry Medical Col.
OBG
- Moy, James N.
M.D., U. of Illinois-Chgo.
IMMC, MED, PED
- Mozwecz, Monica A.
M.D., U. of Illinois-Chgo.
FAM
- Muehleman, Carol
Ph.D., U. of Illinois-Chgo.
BCH
- Muehrcke, Allan O.
M.D., Rush University
MED
- Muehrcke, Robert C.
M.D., U. of Illinois-Chgo.
MED
- Mueller, Patricia A.
M.D., Univ. of Chicago
PSY
- Mueller, Paul L.
M.D., Ohio St. Univ.
PED
- Mueller, Rudolph J.
M.D., Ohio St. Univ.
MED
- Mufson, Elliott J.
M.A., Kansas St. Univ.
NEU
- Mundle, Suneel D.
Ph.D.
MED
- Munir, Seema
D.O., Chgo. Col. of Osteo.
FAM
- Murlas, Christopher G.
M.D., Stanford Univ.
MED
- Murphy, Anna Zander
M.S., Rush University
P/GN
- Murphy, Barbara Richard
M.A., Northwestern Univ.
CDS
- Murphy, Joanne T.
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PED
- Murphy, Marcia
M.S., Rush University
M/SN
- Murphy, Peter
M.D., United Kingdom
ANES
- Murray, Anne M.
M.D.
MED
- Murray, Meredith B.
M.D., Loyola U. of Chgo.
OBG
- Murtaugh, Maureen
Ph.D., U. of Connecticut
CNTR
- Murthy, Anantha K.
M.B.B.S., India
RADO, MPH
- Musfeldt, Charles D.
M.B.A., Jacksonville Univ.
PED
- Muthuswamy, Petham
M.B.B.S., India
MED
- Muzaffar, Shirin
M.B.B.S.
MED
- Naber, Sarah
Ph.D., U. of Illinois-Chgo.
MATN
- Nabrinisky, Stanislav
M.D.
MED
- Nadimpalli, Raja R.
M.B.B.S.
MED
- Nadimpalli, Surya P.
M.B.B.S.
DIAG
- Nadimpalli, Venkat R.
M.B.B.S.
PATH
- Nagel, B. Michael, Jr.
M.D., Loyola U. of Chgo.
OBG
- Nagpal, Rajeev
M.D.
PED
- Nagy, Kimberly K.
M.D., Ohio State Univ.
GSUR
- Nagy, Szabolcs
M.D.
PATH
- Naidu, Vasantha
M.B.B.S., India
PED
- Najafi, Hassan
M.D., Iran
CVT
- Najafi, Kevin Lewis
M.S., Northwestern Univ.
HSM
- Nama, Prabhavathi
M.B.B.S., India
OBG
- Nandkumar, Premalatha
M.B.B.S.
MED
- Narayan, M. S. Laxmi
M.B.B.S., India
PED
- Nasr, Isam
M.D.
MED
- Nasr, Ned
ANES
- Natarajan, Raghunatha
Ph.D., India
ORTH
- Nath, Heather Anne
M.D., Rush University
ANES
- Nawas, Yousef N.
M.D.
MED
- Nayudu, Sasikiran
M.B.B.S.
PSY
- Nazari, Jose
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MED

Alphabetical Faculty Listing

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M.D., Loyola U. of Chgo.
PED
- Necas, Kevin J.
M.B.A., Northwestern Univ.
HSM
- Nedeff, David Daniel
M.D., West Virginia Univ.
ORTH
- Neerukonda, Sujatha
M.B., India
PMR
- Neguín, Noel D.
M.D., Philippines
MED
- Nelson, Bertram
M.D., Rush University
MED
- Nelson, Delburt H.
M.D., U. of Illinois-Chgo.
FAM
- Nelson, Jeffrey A.
M.D., U. of Illinois-Chgo.
MED
- Nelson, Kenneth S.
M.D., U. of Illinois-Chgo.
FAM
- Nelson, Linda L.
M.S., Univ. of Rochester
CHN
- Nelson, Michael N.
Ph.D., U. of Wisconsin
PSYC, PED
- Nelson, William J.
M.D., Loyola U. of Chgo.
FAM
- Nemri, Mourice S.
M.D., Italy
PED
- Nepomuceno, Jenie S.
M.D., Univ. of Chicago
MED
- Nerad, Judith
M.D., Loyola U. of Chgo.
MED
- Neri, Gilberto S., Jr.
M.D., Philippines
MED, PVM
- Nevalainen, David
Ph.D., U. of Minnesota
PATH
- Nevasky, Natalia G.
M.D.
PED
- Newman, Ann H.
M.S.N., Washington Univ.
P/GN
- Newman, Daniel C.
M.D., U. of Michigan
ORTH
- Newman, Edward A.
MED
- Newman, J. Christopher
M.F.A., U. of Pennsylvania
M.B.A., Univ. of Chicago
HSM
- Newman, Julius S.
M.D., U. of Illinois-Chgo.
MED, FAM
- Newman, L. Michael
M.D., Wayne State Univ.
Ph.D., U. of Ill.-Cham/Urb
ANES
- Newman, Michael
M.D., Wayne State Univ.
Ph.D., U. of Illinois-Chgo.
OBG
- Neybert, Hilary F.
M.D., Loyola U. of Chgo.
FAM
- Neyman, Ida
M.D., Med. U. of So. Carolina
PMR
- Neyman, Patricia D.
M.D., Rush University
MED
- Nguyen, Cam
M.D.
RADO
- Nicholas, John J.
M.D., Case Western Reserve
PMR
- Nielsen, Thomas J.
M.D., Rush University
OTO
- Niles, Walter D.
Ph.D., Univ. of Wisconsin
PHY
- Nishime, Robert Seiji
M.D., Rush University
FAM
- Nolan, A. Clark
M.D., McGill University
MED, DIAG
- Nolinske, Terrie L.
Ph.D., Northwestern Univ.
OCC, HSM
- Noonan, Daniel J.
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MED
- Nootens, Raymond H.
M.D., U. of Illinois-Chgo.
OPHT, PHR
- Nora, Maris V.
Ph.D., U. of Calif.-San Fran.
PHR
- Norlock, Frances Eugenia
M.P.H., U. of Michigan
MED
- Norman, Douglas R.
M.D.
CVT
- Normoyle, Donald
M.D., U. of Illinois-Chgo.
ANES
- Noronha, Peter
M.B.B.S., India
PED
- Northrop, Gretajo
M.D., Ph.D., U. of Wisconsin
MED, OBG
- Noto, Peter Louis
D.D.S., U. of Illinois-Chgo.
GSUR
- Novak, Elaine
M.S., Natl. Col. of Educ.
OCC
- Novetsky, Gary J.
M.D., Rush University
DIAG
- Novotny, Nancy R.
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MED
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OBG
- Ruderman, Eric M.
M.D., Einstein Sch. of Med.
MED
- Rufer, Linda J.
M.D., Rush University
PED
- Ruff, William J.
M.D., Loyola U. of Chgo.
FAM

Alphabetical Faculty Listing

- Ruffolo, Ivana Franca
M.D., Univ. of Chicago
MED
- Ruggie, Neal T.
M.D., Johns Hopkins U.
MED
- Rukin, Sharon
Ph.D., Northwestern Univ.
CDS
- Russell, Hugh D.
M.D., Rush University
MED
- Russell, Patricia L.
M.D., Chgo. Medical Sch.
MED
- Russo, Martin T.
D.O., Chgo. Col. of Osteo.
FAM
- Ryan, Anna Maria
PATH
- Ryan, Catherine
M.S., Northern Illinois Univ.
M/SN
- Ryan, Edward C.
M.D., U. of Illinois-Chgo.
OBG
- Ryan, Norman
M.D.
FAM
- Ryan, Will G.
M.D., Baylor Col. of Med.
MED
- Rybarczyk, Bruce D.
Ph.D., Virg. Commonw'lth U.
PSYC, PMR
- Ryd, Wesley H.
M.D., U. of Illinois-Chgo.
FAM
- Saba, Mary T.
M.S., Rush University
M/SN
- Sabel, Michael S.
M.D., Temple University
GSUR
- Sabesin, Seymour
M.D., New York University
MED
- Sable, Karen S.
M.D., Rush University
MED
- Sachs, Roberta
Ph.D., Northwestern Univ.
PSYC, PSY
- Saclarides, Theodore
M.D., Univ. of Miami
GSUR, OBG, RADO
- Sadegi, Barry
M.D., Iran
OBG
- Sadoughi, Nader
M.D., Iran
UROL
- Sadowski, Dawn Lisa
M.D., Univ. of Chicago
OBG
- Saffold, Carol W.
M.D., Rush University
OBG
- Sagana, Rosmarie M.
M.D.
PED
- Sahajpal, Tripat
M.D.
PED
- Sahu, Jonathan
MED
- Saker, Mark B.
M.D.
DIAG
- Salamone, Frank
M.D., Marquette Univ.
OBG
- Saleem, Moeen A.
M.D.
MED
- Saleem, Tausif
PATH
- Saleh, Nabil M.
M.B., Egypt
PED
- Salem, M. Ramez
ANES
- Salgia, Rakash
M.B.B.S.
MED
- Salitore, Judith
M.S., Rush University
MATN
- Saltzberg, Mitchell Todd
M.D., Yale University
MED
- Saltzberg, Samuel N.
MED
- Salvi, Sharad
M.B.B.S., India
PED
- Salzman, Gary H.
M.D., Rush University
MED
- Samelson, Charles F.
M.D., U. of Illinois-Chgo.
PSY
- Sample, Madison Jr.
M.D., Washington Univ.
ANES
- Samuel, Joyce
M.B.B.S.
MED
- Sanborn, Earl Boyce
M.D., Northwestern Univ.
GSUR
- Sanchez, Jerry
M.D., U. of Minnesota
PED
- Sandell, Linda
BCH
- Sanders, Roxane Y.
M.D., U. of Cincinnati
PSY
- Sandler, Richard H.
PED
- Sandler, Steven A.
M.D., U. of Illinois-Chgo.
MED
- Sandrolini, James A.
M.D., U. of Illinois-Chgo.
GSUR
- Sankary, Howard
M.D., Wake Forest Univ.
GSUR
- Sanker, Jayachandran
M.B.B.S., Australia
PSY
- Santander, Marc
M.D., Cuba
ANES
- Santiago-Berrios, Luis
M.D., Puerto Rico
PED
- Santucci, Barbara
M.D., Loyola U. of Chgo.
MED, PED
- Santucci, Peter A.
M.D., Northwestern Univ.
MED
- Santucci, Victoria DiTella
D.O.
PMR
- Sapala, Shirley
M.S.N., Ohio State Univ.
CHN
- Saran, Marilyn F.
CNTR
- Saroja, Kurubarahalli
RADO
- Sarpolis, Keith
M.D., U. of Michigan
MED
- Sassetti, Marian R.
M.D., Stanford University
FAM
- Sassetti, Richard J.
M.D., U. of Illinois-Chgo.
MED, PATH
- Sastry, Vasantha
M.B.B.S., India
OBG
- Sattar, Payman
M.D., Rush University
MED
- Sattar, Syed A.
M.B.B.S.
MED
- Sauerberg, Steven K.
M.D., Rush University
FAM
- Savage, Teresa A.
M.S., U. of Illinois-Chgo.
MATN, RHHV
- Savino, Anthony W.
M.D., Rush University
ORTH
- Sawicka, Joanna M.
M.B.B.S.
RADO
- Sawlani, Omprakash
M.B.B.S., India
PED
- Saxena, Sudershan
M.D., India
ANES

- Saxena, Virenda S.
M.B.B.S., India
RADO, MPH
- Sayana, Vijaya
M.B.B.S., India
PED
- Sayers, Christopher D.
M.D., Indiana Univ.
MED
- Sazy, John A.
M.D., Wayne State Univ.
ORTH
- Sbalchiero, Jane Stephanie
M.D., Rush University
GSUR
- Scafuri, Ralph L.
M.D., U. of Illinois-Chgo.
ORTH
- Schaer, Gary L.
M.D., Yale University
MED
- Schafer, Michael E.
M.D., Chicago Med. School
PLAS
- Schaff, Mary Ruth
M.D., U. of Cincinnati
PSY
- Schaffner, John A.
M.D., Rush University
MED, PATH
- Schaller, Elizabeth
M.S., St. John's Univ.
MTPT
- Schapiro, Joseph S.
M.D., Univ. of Maryland
PED
- Schattauer, Paul C.
M.D., Univ. of Iowa
FAM
- Schechter, Esther M.
Ph.D., Univ. of Chicago
IMMC
- Scheetz, Annette A.
M.D., U. of Illinois-Chgo.
MED
- Scheftner, William A.
M.D., U. of Wisconsin
PSY
- Schell, Nancy P.
M.D.
PSY
- Schenck, Robert R.
M.D., U. of Illinois-Chgo.
ORTH, PLAS
- Schwartz, Lionel J.
M.B.C.H., South Africa
OBG
- Schick, Vernon F.
M.D., Rush University
MED
- Schillo, Richard
M.S., Rush University
M/SN
- Schlais, Rudolph A., III
ANES
- Schleifer, Donald M.
M.D., U. of Illinois-Chgo.
OBG
- Schmid, Thomas M.
Ph.D., U. of Ill.-Cham/Urb
BCH
- Schneck, Michael
NEU
- Schneider, Robert H.
M.D.,
MED, PSY
- Schnitzer, Thomas J.
M.D., Harvard University
Ph.D., United Kingdom
MED
- Schoenberger, James A.
M.D., Univ. of Chicago
PVM, MED
- Schoenenberger, Joseph
Ph.D., Florida State Univ.
PSYC, PVM
- Scholossberg, Debra L.
M.D., Univ. of Cincinnati
OBG
- Schowalter, Karlene R.
M.S., Rush University
CHN
- Schraufnagel, Mary N.
M.D., U. of Illinois-Chgo.
MED
- Schreiber, Nancy
M.S.N., Loyola U. of Chgo.
M/SN
- Schrift, Michael J.
D.O., U. of Med. & Dent of N.J.
PSY
- Schripsema, Cynthia
M.S., Rush University
HSM
- Schroeder, Steven M.
M.D., Northwestern Univ.
PSY
- Schuch, Joanne M.
M.S., U. of Connecticut
M.B.A., Case Western Res. U.
M/SN
- Schuessler, Roger R.
M.D., Washington Univ.
MED
- Schumacher, Barbara
BCH
- Schuss, Zeev
Ph.D., Northwestern Univ.
PHY
- Schwartz, Daniel
M.D., Baylor University
PATH
- Schwartz, David Nathan
M.D., Rush University
BCH
- Schwartz, Melvin M.
M.D., U. of Minnesota
PATH
- Schwartz, Theodore B.
M.D., Johns Hopkins Univ.
MED
- Schweinius, Erika Margaret
M/SN
- Schwer, William
M.D., U. of Illinois-Chgo.
FAM
- Scimecca, Rae L.
M.D., St. Louis Univ.
PED
- Scorza, Elaine
M.S.N., St. Xavier College
P/GN
- Scotellaro, Jennifer Kathleen
M.D., Rush University
PED
- Scott, Michelle G.
M.D., Northwestern Univ.
MED
- Scullion, Brian F.
M.D., Stanford Univ.
MED
- Seale, Raymond
Ph.D., U. of Minnesota
ANAT
- Segalene, Asya L.
PED
- Segreti, John
M.D., Rush University
MED
- Seidler, Andreas
M.D., U. of Illinois-Chgo.
MED
- Seker, Shanti J.
Selin, Ann B.
M.D., U. of Ill.-Cham/Urb.
CDS
- Seltzberg-Romeo, Roni
M.D., Australia
PSY
- Seltzer, James E.
D.O., Chgo. Col. of Osteo.
OBG
- Semel, Jeffrey D.
M.D., Univ. of Chicago
MED
- Senger, Christof
M.D.
PATH
- Sequeira, Winston
M.B.B.S.
MED
- Serry, Cyrus
M.D., Iran
CVT
- Seshadri, Kandiur
M.B.B.S., India
ANES
- Sethi, Pawan K.
M.D.
FAM
- Sexton, Barbara
M.S.N., Aurora University
M/SN
- Sha, Beverly E.
M.D., Johns Hopkins Univ.
MED
- Shackelford, Janet M.
M.D.
OBG
- Shafer, Sid J.
M.D., U. of Illinois-Chgo.
ORTH

Alphabetical Faculty Listing

- Shaffer, Lemuel
M.D., U. of Illinois-Chgo.
OBG
- Shah, Ansu
M.B.B.S.
PED
- Shah, Mahendra M.
M.S., India
MED
- Shah, Maimoona M.
M.B.B.S.
PED
- Shah, Rohit R.
M.B.B.S.
MED
- Shahidi, Homayoon
MED
- Shahinpour, Nayereh
M.S.N., Wayne State Univ.
M/SN
- Shallat, Charles H.
M.D., U. of Illinois-Chgo.
MED
- Shalowitz, Mervin
M.D., Loyola U. of Chicago
MED
- Shanks, Kathleen
D.N.Sc., Rush University
P/GN
- Shanmugam, Vijay
M.B.B.S.
NEU
- Shannon, Iris
Ph.D., U. of Illinois-Chgo.
CHN, HSM
- Shannon, John Jay
M.D., Rush University
MED
- Shannon, Kathleen M.
M.D., Rush University
NEU
- Shapiro, Jerrold E.
M.D., U. of Illinois-Chgo.
MED
- Shapiro, Jules S.
M.D., U. of Illinois-Chgo.
ORTH
- Shapiro, Roberta J.
M.P.H., Yale University
M.B.A., Univ. of Chicago
HSM
- Sharma, Madhu M
M.D., Tufts University
RADO
- Sharma, Sushil K
M.D., India
MED
- Sheaff, Charles Milton
M.D., Rush University
GSUR
- Sheagren, John N.
M.D., Columbia Univ.
MED
- Sheinkop, Mitchell B.
M.D., Chgo. Medical Sch.
ORTH
- Shekarloo, Afrasiab
M.D., Iran
OBG
- Shekhani, Naseem A.
M.B.B.S.
PMR
- Shekleton, Maureen
D.N.Sc., Rush University
- Sheldon, Jan Alyson
P/GN
- Sheldon, Mark Peter
Ph.D., Brandeis Univ.
RHHV
- Sheldon, Stephen H.
D.O., Chgo. Col. of Osteo.
PED, PVM
- Shenker, David M
M.D., Tufts University
NEU
- Shepherd, Sandra K.
Ph.D., Pennsylvania St. U.
CNTR
- Sherbahn, Richard P.
M.D., Univ. of Hawaii
OBG
- Sherer, Renslow D.
M.D., Rush University
MED
- Shetty, Vilasini T.
Ph.D.
MED
- Shicker, Louis
M.D., Einstein Sch. of Med.
MED
- Shield, Jo Ellen
M.S., U. of Illinois-Chgo.
CNTR
- Shih, David J.
M.D., Massachusetts Med. Sch.
NEUS
- Shim, Belle J.
M.B.A., Rosary College
CNTR
- Shin, Peter C.
M.D., Northeastern Ohio Univ.
NEUS
- Shin, Richard D.
M.D., New York Univ.
PLAS
- Shindler, Andrea G.
M.A., Northwestern Univ.
NEU
- Shindollar, Joyce
M.B.A., Rosary College
HSM
- Shirazi, Wasif Hussain
M.D., U. of Illinois-Chgo.
MED
- Shmigelsky, Irene
M.D., U. of Illinois-Chgo.
PED
- Shobris, Martin
M.D., Ph.D., West Germany
FAM
- Shoelson, Allan J.
D.P.M., Scholl Col. of Podia.
ORTH
- Shor, Merrick
M.D., Rush University
DIAG
- Shorr, Gail Joyce
M.D., U. of Illinois-Chgo.
PED
- Short, Jeffery A.
Ph.D., Brigham Young U.
MED, IMMC
- Shott, Susan
Ph.D., Univ. of Chicago
PVM
- Shover, James D.
B.S., Western Illinois U.
MTPT
- Showel, John L.
M.D., U. of Illinois-Chgo.
MED
- Shulman, Morton
M.D., U. of Illinois-Chgo.
ANES
- Shulman, Robert B.
M.D., Chgo. Medical Sch.
PSY
- Shulruff, Reeva N.
M.D., Northwestern Univ.
PED
- Shum, Norine
M.S., De Paul Univ.
HSM
- Shvartsman, Leonid
M.D., Soviet Union
PSY
- Sicotte, Susan J.
M.D., Univ. of Chicago
NEU
- Sidell, Richard
M.D., Wayne State Univ.
ORTH
- Sidhu, Devinder Kaur
M.B.B.S.
ANES
- Siegel, Marcia J.
OBG
- Siegall, Scott Andrew
M.D., U. of Illinois-Chgo.
PSY
- Siegel, Irwin
M.D., Northwestern Univ.
ORTH, NEU, PSY
- Siegel, Joan
Ph.D., U. of Massachusetts
IMMC, MTPT
- Siegel, Sandra C
M.A., Northern Ill. Univ.
PED
- Sietsema, Dale A.
M.B.A., Loyola U. of Chgo.
HSM
- Sievertsen, Grant D.
M.D., U. of Pennsylvania
MED
- Siglin, Martin G.
M.D., Rush University
MED
- Sikand, Beno
MED

- Silerzio, Paula
M.O.T., Western Michigan U.
OCC
- Silins, V. Raymond
M.D., West Germany
MED
- Silver, Michael
M.D., Albany Med. Col.
MED
- Silverman, Paul
M.D., Univ. of Chicago
MED
- Silverstein, Jonathan C.
M.D., Washington Univ.
MED
- Silverton, Craig
D.O.
ORTH
- Silvestri, Jean M.
M.D., U. of Pittsburgh
PED
- Simon, Alan M.
DIAG
- Simon, David
M.D., Ph.D., Rush University
MED
- Simoton, Ronald L.
D.O., Chgo. Col. of Osteo.
FAM
- Simpson, Kenneth H.
MED
- Singh, Rama S.
M.B.B.S., India
PED
- Sinioris, Marie E.
M.P.H., U. of Illinois-Chgo.
HSM
- Sisson, George A.
M.D., Syracuse Univ.
OTO
- Sivan, Abigail B.
Ph.D., New York University
PSYC, PSY
- Sivarajan, Thenmathi
M.B.B.S., India
PED
- Sivertsen, Lynn
M.S.N., U. of Illinois-Chgo.
P/GN
- Skarulis, Patricia
M.A., St. John's Univ.
HSM
- Skinner, Sarah
M.Ed., Loyola U. of Chgo.
OCC
- Skipor, Anastasia K.
ORTH
- Skipper, Annalynn
M.S., Texas Tech. Univ.
CNTR
- Skul, Bozica
M.D., Yugoslavia
FAM
- Skul, Vesna
M.D., Rush University
MED
- Sky Peck, Howard H.
Ph.D., U. of Southern Cal.
BCH
- Slack, Jeanne
D.N.Sc., Rush University
MATN
- Slanetz, Carolyn Abigail
M.S., Harvard Univ.
HSM
- Slivnick, Barbara Yate
M.D., U. of Ill.-Cham/Urb
PED
- Slivnick, David J.
M.D., U. of Illinois-Chgo.
MED
- Sloan, Sheldon
M.D., Rush University
MED
- Slobodkin, David
M.D., U. of Louisville
MED
- Slowie, Linda A.
M.S., Univ. of Chicago
CNTR
- Slusher, Tina M.
M.D., Univ. of Kentucky
PED
- Slutsky, Joel N.
M.D., Mexico
UROL
- Smart, Kathryn A.
M.S., Rush University
P/GN
- Smink, David M.
M.D., Case Western Res. U.
ORTH
- Smit, Julie A.
M.S., Rush University
M/SN
- Smith, Bonnie
CDS
- Smith, Cheryl Ann
M.S., Rhode Island Univ.
CHN
- Smith, Christopher John
M.D., Loyola U. of Chgo.
PED
- Smith, Claire S.
M.D., Loyola U. of Chgo.
DIAG, ANAT
- Smith, Diane Yeager
M.S., Rush University
CHN
- Smith, Joyce M.
M.D., U. of Ill.-Cham/Urb
PED
- Smith, Matthew B.
M.D., Univ. of Chicago
MED
- Smith, Michael C.
NEU
- Smith, Peter
M.D.
ORTH
- Smith-Leonardi, Susan
M.S., Rush University
M/SN
- Smorowski, Karen Marie
M.D., U. of Illinois-Chgo.
RADO
- Smyrniotis, Colleen M.
M.S.N., Loyola U. of Chgo.
P/GN
- Snell, Jeffrey R.
M.D., Rush University
MED
- Snopko, Rose Marie
Ph.D., U. of Ill.-Cham/Urb
MED, BCH.
- Snyder, Leonard
M.D., Northwestern Univ.
GSUR
- Soble, Jeffrey S.
M.D., Univ. of Michigan
MED
- Sochacki, Stacy L.
M.S., New York State Col.
HSM
- Sodetz, Richard A.
M.D., U. of Illinois-Chgo.
ORTH
- Sodt, Peter C.
M.D., Northwestern Univ.
PED
- Soglin, David F.
M.D., Rush University
PED
- Sokalski, Steven J.
D.O., Chgo. Col. of Osteo.
MED
- Sokovich, Ronald S.
M.D., Southern Ill. Univ.
UROL
- Solaro, John R.
Ph.D., Univ. of Pittsburgh
PHR
- Solmos, Gene Robert, Jr.
M.D., Rush University
DIAG
- Soltes, Barbara
M.D.
OBG
- Soltes, Steven F.
M.D., Loyola U. of Chgo.
OTO
- Somers, Jonathan
M.D., Pennsylvania St. U.
CVT
- Sosis, Mitchel
M.D., U. of Kentucky
ANES
- Southe, Sharon M.
MED
- Southwick, Harry W.
M.D., Harvard University
GSUR
- Sowa, Diane
M.B.A., De Paul Univ.
CNTR
- Spaccarelli, Karen C.
M.D., U. of Cal. - Irvine
ANES
- Spaeth, Ralph
M.D., Case Western Res. U.
PED

Alphabetical Faculty Listing

- Spanier-Mingolelli, Stefan
M.D., Albany Med. Col.
PED
- Spear, Gregory T.
Ph.D., U. of Illinois-Chgo.
IMMC, MED
- Speed, Curtis L.
M.D., Rush University
PED
- Sperhac, Arlene M.
Ph.D., Univ. of Denver
MATN
- Spiess, Susannah Elfriede
M.D., Northwestern Univ.
MED
- Spiro, Barbara
M.D., Switzerland
OPHT
- Spitz, Daniel J.
M.D., Wayne State Univ.
GSUR
- Spitz, Jonathan David
M.D., Wayne State Univ.
GSUR
- Sramek, Joseph Gerald
M.D., Rush University
NEUS
- St. Clair, Doris E.
M.D., Northwestern Univ.
PSY
- St. Pierre, Aimee C.
M.D., Rush University
PSY
- Staffileno, Beth Ann
M.S., Rush University
M/SN
- Stahl, Laura
PSY
- Staisz-Baczek, Maria
M.D., Poland
PED
- Stamat, Nicholas S.
M.D., Greece
PED
- Stambolis, Vesilios
M.D., Greece
PMR
- Stamelos, Spiros G.
M.D.
ORTH
- Stampley, Andrea
M.D., Rush University
PED
- Stampley, Jan O.
M.D., Rush University
PSY
- Stancic, Zoran
M.D.
ANES
- Stanley, Robert E.
M.D., U. of Illinois-Chgo.
MED
- Stansbury, James A., III
ANES
- Starck, Timothy W.
M.D., Rush University
ANES
- Staren, Edgar
M.D., Loyola U. of Chgo.
Ph.D., Rush University
GSUR, IMMC
- Stavinga, Ronald F.
M.D., U. of Illinois-Chgo.
MED
- Stavrakos, Charalambos
M.D., West Germany
MED
- Stebbins, Glenn T.
Ph.D., Univ. of Arizona
NEU, PSYC
- Stec, Paul M.
D.D.S., Marquette University
GSUR
- Steed, W. David
M.D., Northwestern Univ.
PSY
- Steelman, Sara H.
M.D., Indiana Univ.
PED
- Stefoski, Dusan
M.D., Yugoslavia
NEU
- Stegmaier, Jo Ann
P/GN
- Stein, Robert M.
M.D., Chgo. Medical Sch.
OPHT
- Stein, Sanford
M.S., Ill. Inst. of Tech.
HSM
- Stein, Zepahniah
B.S., U. of Michigan
PHR
- Steinbach, Pamela T.
M.S., Rush University
NP/G
- Steiner, Monica L.
PMR
- Stein-Gocken, Julie M.
CNTR
- Stemer, Alexander A.
M.D., U. of Illinois-Chgo.
MED
- Stern, Dean S.
D.P.M., Scholl Col. of Podia.
ORTH
- Stevens, Kathleen
M.S., Rush University
M/SN
- Stewart, Irene E.
M.S.N., Loyola U. of Chgo.
M/SN
- Stewart, James D.
Ph.D., U. of Illinois-Chgo.
PSYC
- Stine, Robert H.
M.D., Thomas Jefferson U.
PED
- Stockton, Donna L.
M.D., CUNY-Mt. Sinai M. C.
DERM
- Stofflet, Michelle Lynn
M.S., Rush University
M/SN
- Stoioff, Madonna
M.A., Kent State Univ.
CDS
- Stokar, Elliot
M.D.
MED
- Stolar, Joel
M.D., Wayne State Univ.
OPHT
- Stone, James L.
M.D., St. Louis Univ.
NEUS
- Stoops, Joyce
NM/S
- Strain, Lawrence D.
M.B.A., Tulane Univ.
HSM
- Strassner, Howard
M.D., Univ. of Chicago
OBG
- Straus, Albert K.
M.D., Northwestern Univ.
Ph.D., U. of Illinois-Chgo.
GSUR
- Straus, Helen E.
MED
- Straus, Michelle N.
M.D., U. of Illinois-Chgo.
MED
- Strayhorn, Earlene E.
M.D., Rush University
PED
- Strelczyk, Matthew J.
M.D.
MED
- Strick, Creighton
M.D., U. of Wisconsin
MED
- Stringer, Nelson H., Jr.
M.D., Meharry Medical Col.
OBG
- Strodtbeck, Frances
D.N.Sc.
MATN
- Strohl, Lee H.
M.D., Yale University
DERM
- Strohman, Marilyn J.
M.S., Rush University
MATN
- Strokosch, Gary R.
M.D., U. of Illinois-Chgo.
PED
- Strom, Charles M.
M.D., Univ. of Chicago
OBG
- Strote, Scott E.
M.D., SouThern Ill. Univ.
OBG
- Strozler, Charles P.
Ph.D., Univ. of Chicago
PSY
- Strzembosz, Patricia
M.D., Loyola U. of Chgo.
PED
- Stumpe, Marjorie
M.A., Governors State U.
MTPT

- Stupay, Susan
M.S., Rush University
P/GN
- Sturdevant, Frank
M.D., Univ. of Iowa
OBG
- Subbaiah, Papasani V.
Ph.D., India
MED, BCH
- Sugathan, Prasanna
M.D.
MED
- Suggs, Adrienne H.
M.D., Washington Univ.
PED
- Sugimoto, Danny H.
M.D., Rush University
MED
- Suh, Sang
M.D., South Korea
ORTH
- Suhayda, Rose
M/SN
- Sukerkar, Arun N.
M.B.B.S.
DIAG
- Sula, Sheila
M.S., Rush University
M/SN
- Suleiman, Khair A.
M.B.Ch., Iraq
PED
- Suliaman, Fawzi
M.B.Ch., Iraq
PED
- Sullivan, Terence P.
M.D., Northwestern Univ.
MED
- Sulyaman, Rabi F.
M.D., Lebanon
PED
- Sumner, Dale R., Jr.
Ph.D., Univ. of Arizona
ORTH, ANAT,
- Sunbulli, Talal
M.D., Syria
MED
- Sundaresan, Gayathri
M.D., Rush University
MED
- Susmano, Armando
M.D., Argentina
MED
- Svendrowski, Marion Jr.
M.D., St. Louis Univ.
GSUR
- Swanson, Leslie H.
M.B.A., DePaul University
CDS
- Swarts, Charles L.
M.D., New York Med. Col.
PED
- Swartwout, Kathryn J.
M.S., Rush University
CHN
- Swartz, Robert M.
M.D., U. of Michigan
PLAS
- Swartzman, Penelope
M.S.N., U. of Michigan
M.B.A., Univ. of Chicago
M/SN
- Swenson, Erik Andrew
GSUR
- Swordlow, Arnold B.
M.D., U. of Illinois-Chgo.
GSUR
- Szatkowski, Mary
M.D., Loyola U. of Chgo.
OPHT
- Szidon, J. Peter
M.D., Brazil
MED
- Taheri, Beth
M/SN
- Tan, Bernardo, Jr.
M.D.
PED
- Tan, Carmela Deluta
M.D.
PATH
- Tanabe, Paula
M.S.N., Loyola U. of Chgo.
M/SN
- Tang, John M.
Ph.D., Rush University
PHY
- Tang, Jue Lin
M.D.
MED
- Tang, Ming-yeng S.
M.D.
MED
- Tangney, Christine
Ph.D., Virg. Poly Inst /St. U.
CNTR
- Tanis, Elizabeth A.
M.S., U. of Illinois-Chgo.
CHN
- Tanna, Bhavna N.
M.B.B.S.
ANES
- Tanna, Manish Manhar
M.D., U. of Illinois-Chgo.
MED
- Tanner, Caroline M.
NEU
- Tanner, Lydia
M.S., Rush University
CHN
- Tapia, Sakina S.
M.D., India
PED
- Tarlos-Benka, Judith
M.S.N., Northwestern Univ.
MATN
- Tarnow, Jane
D.N.Sc., Rush University
M/SN
- Tarun, Donald
M.D., U. of Illinois-Chgo.
MED
- Tarzynski, Marian S.
M.D., Italy
MED
- Tauber, Sandra M.
M.B.A., U. of Illinois-Chgo.
HSM
- Tausk, Kasriel
M.D., Italy
MED
- Taylor, Samuel G., III
M.D., Univ. of Chicago
MED
- Taylor, Samuel G., IV
M.D., U. of Saskatchewan
MED
- Te, Helen Saavedra
M.D.
MED
- Templeton, Alexander C.
M.B.B.S., United Kingdom
PATH
- Tenta, Louis T.
M.D., Indiana Univ.
OTO
- Tenzer, Penny
M.D., Israel
FAM
- Teplitz, Eric
M.D., U. of Illinois-Chgo.
MED
- Terebessy, Hilarie
Ph.D., Ill. Inst. of Tech.
PSYC
- Terman, Mari D.
M.B.A., Northwestern Univ.
HSM
- Terrell, Patricia R.
M.P.H., U. of Illinois-Chgo.
HSM
- Tess, Maureen M.
M.S., U. of Illinois-Chgo.
M/SN
- Tessalee, Meechai
M.D., Rush University
MED
- Thampy, Kishore J.
M.B.B.S., Spain
PSY
- Tharp, Michael D.
M.D., Ohio State Univ.
DERM
- Theodorakis, Spyros
M.D.
GSUR
- Theorell, Catherine
M.S.N., Loyola U. of Chgo.
MATN
- Thilenius, Otto G.
M.D.
PED
- Thomas, Charlene
M.S.N., U. of Illinois-Chgo.
M/SN
- Thomas, Dolly
M.B.B.S.
PED
- Thomas, Jayamma
M.B.B.S.
PED

Alphabetical Faculty Listing

- Thomas, Larry L.
Ph.D., U. of Illinois-Chgo.
IMMC
- Thomas, William, Jr.
M.D., Boston University
PATH
- Thompson, Carletta H.
M.D., U. of Illinois-Chgo.
PMR
- Thompson, Dennis S.
D.O., Chgo. Col. of Osteo.
PSY
- Thompson, Lee D.
Ph.D., Indiana Univ.
HSM
- Thomson, Andrew
M.D., Indiana Univ.
MED
- Thomson, Cameron
M.D., U. of Illinois-Chgo.
MED
- Thonar, Eugene J-M. A.
Ph.D., United Kingdom
BCH, MED
- Thundathil, Julie A.
M.B.B.S.
PED
- Thunder, Thomas D.
M.A., Northern Ill. Univ.
CDS
- Timmons, John A.
M.D., Rush University
MED
- Tiruvury, Anuradha
M.B.B.S., India
PED
- Tomlinson, Michael J.
D.D., Auburn Univ.
ORTH
- Tonkovic, Russ J.
M.D., St. Louis Univ.
MED
- Topel, Jordan L.
M.D., Loyola U. of Chgo.
NEU
- Torczynski, Elise
M.D., U. of Wisconsin -Milw.
OPHT
- Tordecilla, Lydia
M.S., De Paul Univ.
P/GN
- Torres, Hernando
M.D., Colombia
NEUS
- Torres, Maria L.
M.D.
ANES
- Towne, Laurie L.
M.D., Harvard Univ.
MED
- Townsend, Barbara
M.S., U. of Illinois-Chgo.
OCC
- Tracy, Katherine A.
M.D., Rush University
PSY
- Tradonsky, Steven
M.B.B.S.
ORTH
- Trafimow, Jordan H.
M.D., U. of Illinois-Chgo.
ORTH
- Trager, Eugene P.
M.D., U. of Illinois-Chgo.
PSY
- Trakas, Demetrius A.
M.D., Greece
PSY
- Trenholme, Gordon M.
M.D., Marquette Univ.
MED, IMMC
- Troyk, Philip R.
Ph.D., U. of Illinois-Chgo.
NEUS
- Trubow, Leslie N.
M.D., Rush University
PED
- Truchly, Vasil
M.D., West Germany
OBG
- Trufant, John E.
Ed.D., Univ. of Florida
HSM
- Trufant, Judy
M.N., Univ. of Florida
MATN
- Trusewych, Timothy B.
D.O., Chgo. Col. of Osteo.
MED
- Tsai, Houn
M.D., Taiwan
ANES
- Tsarwhas, Dean
M.D., Northwestern Univ.
MED
- Tseng, Daniel S.
M.D., Medical Col. of Wisc.
MED
- Tseng, Mickey Ming-Yu
M.D., St. Louis University
ORTH
- Tucker, W. Randolph
M.D., U. of Cincinnati
MED
- Tucker, William Fulton, Jr.
M.D., Texas Southern U.
ORTH
- Tucker, William T., Jr.
M.D., Rush University
PED
- Tuman, Kenneth J.
M.D., U. of Illinois-Chgo.
ANES
- Tuman, Mary T.
M.D., Northwestern Univ.
ANES
- Tunestam, Nils J.
M.D., Sweden
PED
- Turner, David A.
M.D., Univ. of Chicago
DIAG
- Turner, Irene R.
M.T., Radcliffe College
PVM
- Turner, Thomas M.
D.V.M., Auburn Univ.
ORTH
- Twiss, Alston C.
M.D., Temple University
MED
- Tyrrell, Shevawn O'Connor
M.S., Loyola U. of Chgo.
MATN
- Tyszka, Thomas S.
M.D., U. of Illinois-Chgo.
MED
- Uebele, Joan A
M.S., U. of Illinois-Chgo.
M/SN
- Uhal, Bruce D.
Ph.D., St. Louis Univ.
PHR
- Uhing, Michael R.
M.D., Creighton Univ.
PED
- Ulsafer-Van Lanen, Jane
M.S., U. of Colorado
P/GN
- Upadhyaya, Varsha V.
M.B.B.S., India
OBG
- Upadhyaya, Vinod P.
M.B.B.S., India
PED
- Urban, John
Ph.D., Carnegie-Mellon U.
MPH, RADO
- Uretz, Eugene F.
M.S., Univ. of Chicago
MED
- Uzer, Michael F.
MED
- Vachon, Gregory C.
M.D., SUNY at Stony Brook
MED
- Val, Evalen
M.D.
ANES
- Valdez, Juan
M.D., Univ. of Iowa
PMR
- Valentino, Leonard A.
M.D., Creighton Univ.
PED, IMMC, MED
- Vallow, Laura Ann
RADO
- Vallury, Venkata A.
M.B.B.S.
PED
- Van, Uyen
M.D., Rush University
ORTH
- Van Berkum, Monique M.
M.D., U. of Ill.-Cham/Urb.
MED
- Van Slyke Patricia Ann
M.S., Illinois State Univ.
CDS

- Vanderberg Dent, Susan
M.D., U. of Illinois-Chgo.
FAM
- Vasan, Ushanalini
M.B.B.S., D.C.H., India
PED
- Vazquez, Juan J.
M.D., Spain
PSY
- Veeragandam, Ramesh S.
M.D., U. of Southern Calif.
CVT
- Velada, Pedro I.
M.D., Philippines
PED
- Velasco, Jose
M.D., Ph.D., Spain
GSUR
- Veldman, Marie A.
D.O., Chgo. Col. of Osteo.
FAM
- Veldman, Mark T.
D.O., Chgo. Col. of Osteo.
FAM
- Vellody, Kunhunni
M.B.B.S., India
PED
- Venkatachalam, Kumar
MED
- Venkataraman, Munusamy
D.V.M, Ph.D., India
MED
- Vento, Elio G.
M.D., Italy
OBG
- Venugopal, Kottarathil
ANES
- Venugopal, Parameswaran
MED
- Venzon, Michael A.
M.S., Northwestern Univ.
PMR, HSM
- VerHey, Marcia K.
M.B.A., Univ. of Chicago
HSM
- Vercoe, James L.
M.D., U. of Michigan
PED
- Verde, Valerie Sylvia
Indiana University
ANES
- Vernovsky, Natalya
M.D., Rush University
PED
- Vidaver-Cohen, Doris
M.A., U. of Michigan
PVM
- Vidinli, Mustafa
M.D., Turkey
MED
- Viernes, Ann L.
M.S., De Paul Univ.
MTPT .S.
MED
- Vilim, Valdimir
Ph.D.
BCH
- Villwock, Michael D.
M.S., Rush University
CHN
- Vinci, Samuel
D.P.M., Scholl Col. of Podia.
ORTH
- Viner, Jesse
M.D., Northwestern Univ.
PSY
- Virudachalam, Ramasamy
Ph.D.
MPH
- Vishny, Keren W.
M.D., Univ. of Chicago
MED
- Vitug, Lalaine Dural
M.D., Rush University
PED
- Vivar, Zenaida
M.D., Philippines
PSY
- Vlahos, Patricia S.
PED
- Vogel, Lawrence C.
M.D., U. of Illinois-Chgo.
PED
- Vohra, R. Mala
M.B.B.S.
MED
- Volgman, Annabelle Santos
M.D., Columbia Univ.
MED
- Volin, Beth
M.D., Northwestern Univ.
PED
- Voltolina, Eugene J.
M.D., Loyola U. of Chgo.
PSY
- Von Roenn, Kelvin A.
M.D., U. of Kentucky
NEUS
- Vuckovic, Karen
M.S., Northern Ill. Univ.
M/ SN
- Wade, Elaine Lee
M.D., Rush University
MED
- Wafai, Yaser
M.D.
ANES
- Wahi, Ramesh
M.D.
CVT
- Wahlstrom, Carl M. Jr.
M.D., Rush University
PSY
- Wai, William Y.
M.D., Taiwan
PED
- Waickus, Cynthia Marie
M.D., Rush University
Ph.D., U. of Illinois-Chgo.
BCH
- Wainer, Gary C.
D.O., Chgo. Col. of Osteo.
FAM
- Walker, Valerie C.
M.D., Rush University
MED
- Wall, Timothy R.
M.D., Indiana U. of Penna.
PED
- Wallin, Paul E.
M.D.
PED
- Walter, Robert J.
Ph.D., Case Western Res. U.
GSUR
- Walton, Jane
M.S., Arizona State U.
P/GN
- Wanczyk, Teresa
D.O., Chgo. Col. of Osteo.
PED
- Wang, Benjamin J.
M.D., Rush University
MED
- Wang, Chang-Yang
M.D., Taiwan
Ph.D., Northwestern U.
OTO
- Wang, Jin-Zhao
Ph.D., Rutgers Univ.
DIAG
- Wang, Kuo-Fuh
M.D., Taiwan
PED
- Wang, Q. Emily
Ph.D., U. of Connecticut
CDS, OTO
- Wang, Stephanie Crane
M.D., Rush University
MED
- Ward, Wendy Louise
Ph.D.
PSYC
- Wardlaw-Palmer, Carol
M.S.N, U. of Wisc.-Oshkosh
CHN
- Warren, Dawn Maria
M.D., Rush University
OBG
- Warren, William H.
M.D., Univ. of Toronto
CVT, PATH
- Washburn, Kurt Richard
M.D., Loyola U. of Chgo.
NEU
- Wasyliw, Orest
Ph.D., U. of Illinois-Chgo.
PSYC, PSY
- Watkins, Kevin D.
M.D.
MED
- Waszkiewicz, Margaret
M.S., Rush University
P/GN
- Waxman, Jordan
M.D., U. of Illinois-Chgo.
MED
- Wcisel, Gregory James
MED

Alphabetical Faculty Listing

- Webb, John R.
M.A., Webster Univ.
HSM
- Webb, Mary Jo
M.N., Aurora University
M/SN
- Webster, Robert A.
Ph.D., Univ. of Texas
BCH, MTPT, OBG
- Weese-Mayer, Debra E.
M.D., Univ. of Chicago
PED
- Weinberg Jr, Milton
M.D., Duke University
CVT
- Weinstein, Dana Segal
M.N., Cornell Univ. Med. Ctr.
CNTR
- Weinstein, Karen B.
M.D., Rush University
MED
- Weinstein, Robert A.
M.D., Cornell Univ. Med. Ctr.
- Weis, Ernest M.
M.D., U. of Illinois-Chgo.
PED
- Weisbart, Edmond
M.D., U. of Illinois-Chgo.
FAM
- Weisberger, Lise
M.D., Penna. State U.
FAM
- Weisenberg, Elliott S.
M.D., Univ. of Chicago
PATH
- Weisman, Nancy E.
J.D., Illinois Inst. of Tech.
HSM
- Weiss, Gerald E.
M.D., Switzerland
PED
- Weiss, Kevin B.
M.D.
MED
- Weiss, Mark S
M.D., New York Med. Col.
PED
- Weiss, Ronald S.
M.D., Northwestern Univ.
OPHT
- Weitzner, John S.
M.D., Univ. of Chicago
OBG
- Welbel, Sharon F.
M.D., U. of Illinois-Chgo.
MED
- Welch, Barbara
M.S., Rush University
NCH
- Welsh, Thomas J.
D.V.M., Oklahoma St. Univ.
Ph.D., U. of Illinois-Chgo.
IMMC
- Werhane, Mary Jo U.
M.S., U. of Illinois-Chgo.
M/SN
- Werner, William N.
M.D., U. of Illinois-Chgo.
MED
- West, James Ward
M.D., Loyola U. of Chgo.
PSY
- Wester, C. William
M.D., Dartmouth College
MED
- Wester, Carolyn Negley
M.D., Dartmouth College
OBG
- Westerman, Maxwell P.
M.D., U. of Louisville
MED
- Westheimer, Ruth
M.D., Rush University
PSY
- Weyrens, Francis P.
M.D., St. Louis Univ.
OBG
- Whisler, Laura Caryl
M.D., Rush University
OTO
- Whisler, Walter
M.D., Ph.D., U. of Ill.-Chgo.
NEUS, BCH, NEU
- Whitaker, Ronald H.
M.S., Ohio State Univ.
HSM
- White, Donald R.
M.D., Baylor Col. of Med.
PED
- White, Kathleen M.
Ph.D., Northwestern Univ.
CDS
- White, Lynn R.
M.D., U. of Wisconsin
ANES
- White, Martha Joy
M.S.N., U. of Michigan
M/SN
- White-Traut, Rosemary
D.N.Sc., Rush University
MATN
- Whiting, James Frederick
GSUR
- Whitney, Carolyn
M.B.A., M.S.I.S., Roosevelt U.
HSM
- Whittler, Steven G.
M.D., Case Western Res. U.
ANES
- Wichmann, Kathy
N.D., Rush University
CHN
- Wichner, Monica H.
D.O., Chgo. Col. of Osteo.
PMR
- Wickham, Rita
M.S., Northern Illinois U.
M/SN
- Wickramasinghe, M.
M.B.B.S.
PED
- Wiener, Gregory Alan
M.D., Univ. of Kansas
GSUR
- Wiens, Dolores F.
RHHV
- Wigder, Herbert N.
M.D., U. of Wisconsin
FAM
- Wilbanks, George D.
M.D., Duke University
OBG
- Wilbrink, Bert
Ph.D.
BCH
- Wilens, Nancy
M.S., Southern Ill. Univ.
P/GN
- Wiley, John A.
M.D., U. of Illinois-Chgo.
MED
- Willander, Duane A.
M.D., Northwestern Univ.
ORTH
- Williams, Brian David
M.D., Medical Col. of Wisc.
ANES
- Williams, Herlanders J.
B.A., Wartburg College
OBG
- Williams, Jackie A.
M.D., Howard University
OBG
- Williams, James M.
Ph.D., Indiana Univ.
ANAT, BCH, MED
- Williams, James W.
M.D., U. of Tennessee
GSUR
- Williams, Karen Lynne
HSM
- Williams, Mavis T.
M.D., Brown University
PED
- Williams, Ruth M.
M.S.N., St. Xavier Univ.
M/SN
- Williamson, Wayne C.
M.D., U. of Cincinnati
MED
- Willis, Lucy
M.S.N., Ohio State Univ.
MATN
- Willoughby, William A.
M.D., Med. Col. of Georgia
DIAG
- Wilson, Robert S.
Ph.D., Wayne State Univ.
PSYC, NEU
- Wing, Herman
M.D., U. of Texas
MED
- Winkelman, Lois
M.S., Rush University
M/SN
- Winkels, Kathy
M.A., Western Mich. Univ.
CDS
- Winn, Robert A.
MED

- Winsberg, Gwynne Roesse
Ph.D., Univ. of Chicago
PSY
- Winston, Leonard
D.P.M., Scholl Col. Podiatric
ORTH
- Winter, Paul L.
M.D., Northwestern Univ.
MED
- Wirtshafter, Robert
M.D., Univ. of Chicago
PED
- Wisby, Marian
M.S., Rush University
P/GN
- Witkowski, Leon J.
M.D., Northwestern Univ.
GSUR
- Witkowski, Robert
M.D., Rush University
GSUR
- Witt, Mary Ellyn
M.S., Rush University
M/SN
- Witt, Thomas R.
M.D., Northwestern Univ.
GSUR
- Wittert, Donna
M.S., U. of Illinois-Chgo.
M/SN
- Wiznitzer, Israel
M.D., Northwestern Univ.
MED
- Wojcik, Edward
M.D., Loyola U. of Chgo.
ORTH
- Wolf, Mark R.
D.D.S., U. of Illinois-Chgo.
OTO
- Wolf, Robert John
M.D., Northwestern Univ.
MED
- Wolfe, Charles K.
M.D., U. of Pennsylvania
MED
- Wolff, Marcy E.
M.D., U.C.L.A.
FAM
- Wolter, James A.
M.D., Southern Ill. Univ.
NEUS
- Wolter, Janet
M.D., U. of Illinois-Chgo.
MED
- Wong, Alfonso
M.D., Philippines
ANES
- Wong, Alton C.T.
M.D., Med. Col. of Wisc.
MED
- Wong, Paul W.
M.D., Hong Kong
PED, MED
- Wood, Nancy B.
Ph.D., Rutgers Univ.
PATH
- Woodring, Barbara C.
Ed.D., Ball State Univ.
MATN
- Woods, Carmen Maudette
M.D., Meharry Medical Col.
OBG
- Wool, Norman L.
M.D., Chgo. Medical Sch.
GSUR
- Wright, Donovan G.
M.D., U. of Minnesota
PSY
- Wright, Lisa K.
M.D., U. of Illinois-Chgo.
PED
- Wright, Michael Hill
ORTH
- Wright, Robert B.
M.D., U. of Illinois-Chgo.
NEU
- Wrobel, Maria
M.B.A., Univ. of Chicago
HSM
- Wu, Dickson S.
M.D., Indiana U. of Penna.
ANES
- Wurtz, Rebecca M.
M.D., Harvard Univ.
MED
- Wyhinny, George
M.D., U. of Illinois-Chgo.
OPHT
- Wyhinny, Patricia
DERM
- Xiao, Fei
M.D.
GSUR
- Xu, Xiulong
Ph.D.
GSUR
- Yadava, Ved Prakash
M.D., India
MED
- Yana, David V.
PATH
- Yastrow, Edward S.
M.D.
ANES
- Yballe, Sonia B.
M.D., Philippines
PSY
- Yee, Martin J.
M.D., Rush University
PMR
- Yeldandi, Vijay
M.B.B.S., India
MED
- Yelen, Kathryn Ann
M.D., Rush University
PED
- Yellen, Suzanne B.
M.A., U. of Illinois-Chgo.
PSYC, MED
- Yingst, Gisela J.
M.D., U. of Illinois-Chgo.
PED
- Yocum, Carolyn J.
Ph.D., U. of Illinois-Chgo.
M/SN
- Yokoo, Teiriki
M.D., Rush University
PMR
- Yordan, Edgardo
M.D., Univ. of Maryland
OBG
- York, Jeffrey James
ANES
- Yosko, Kathleen
M.N., U. of Pittsburgh
P/GN
- Young, Carolyn V.
M.A., Northwestern Univ.
OTO, CDS
- Young, Michael
Ph.D., Adelphi University
PSYC, PSY
- Young, Stephanie A.
M.D., Loyola U. of Chgo.
PATH
- Yunker, Michael R.
D.O., Chgo. Col. of Osteo.
MED
- Yrapsis, Nicholas
M.D., Greece
OBG
- Yu, David Jin
M.D., Univ. of Chicago
MED
- Yuk, Antonio C.
NEUS
- Zaacks, Stephen Mark
M.D., Northwestern Univ.
MED
- Zacharia, Dubravko J.
M.D., Yugoslavia
OBG
- Zadylak, Robert G.
M.D., Loyola U. of Chgo.
PSY
- Zaidan, Jonathan T.
M.D., Wayne State University
OBG
- Zaidi, Syed S. A.
M.B.B.S. Pakistan
MED
- Zajecka, John M.
M.D., Loyola U. of Chgo.
PSY
- Zakko, Hazim Y.
M.B.Ch., Iraq
PSY
- Zallik, Ned I.
M.D., Chgo. Medical Sch.
MED
- Zalski, Andrew H.
FAM
- Zaneveld, Lourens
D.V.M., Ph.D., U. of Georgia
OBG, BCH, PHY
- Zanotti-Cavazzoni, Sergio
M.D.
MED

Alphabetical Faculty Listing

Zasuly, James M.

GSUR

Zbilut, Joseph P.

D.N.Sc., Rush University

Ph.D., Northwestern Univ.

M/SN, PHY, RHHV

Zeigler, Donald W.

M.A., Indiana U. of Penna.

PVM

Zeitz, Howard J.

M.D., U. of Illinois-Chgo.

IMMC, MED

Zekry, Hazem A.

M.D.

ANES

Zelinger, Bernard B

M.D., Germany

OBG

Zeller, Janice M

M.D., U. of Illinois-Chgo.

M/SN, IMMC

Zervopoulos, Evangelia

M.D., Greece

PED

Zheutlin, Terry A.

M.D., Johns Hopkins Univ.

MED

Zhou, Jiemin

Ph.D.

PED

Ziai, Fuad

M.D.

PED

Ziauddin, Sameena

M.B.B.S.

MED

Zimmerman, Dianne Marie

J.D., Hastings College

HSM

Zinman, Raezelle

M.D.

PED

Zoldan, Jack

M.D., U. of Illinois-Chgo.

MED

Zonsius-Klingelsmith, Mary

M.S., U. of Illinois-Chgo.

M/SN

Zucker, Alan J.

M.D., U. of Illinois-Chgo.

OBG

Zuckerman, Victor

D.O., Phila. Col. Osteo. Med.

PED

Zusag, Thomas W.

RADO

Rush University Honorary Degree Recipients

- 1973** Robert J. Glaser, M.D.
President, Henry J. Kaiser Family Foundation
- William George Anlyan, M.D.
Vice President, Health Affairs
Duke University
- Mark Hummer Lepper, M.D.
Chairman, Comprehensive Health Planning Board
State of Illinois
- 1974** Robert Higgins Ebert, M.D.
Caroline Shields Walker Professor of Medicine
Dean of the Faculty of Medicine,
Harvard Medical School
- 1975** John H. Knowles, M.D.
President, Rockefeller Foundation
- Virginia Henderson, M.A.
Senior Research Associate Emeritus,
School of Nursing, Yale University
- 1976** James Harvey Young, Ph.D.
Professor of History, Emory University
- Jessie M. Scott, R.N., M.A.
Assistant Surgeon General and Director, Division of
Nursing, Health Resources Administration
United States Department of Health, Education and
Welfare
- 1977** David A. Hamburg, M.D.
President, Institute of Medicine of the National
Academy of Sciences
- 1978** Julius B. Richmond, M.D.
Assistant Secretary
United States Department of Health, Education and
Welfare
- 1979** Gerard Piel, B.A.
Publisher and President, Scientific American
- 1980** Harriet Waltzer Sheridan, Ph.D.
Dean of the College, Brown University
- 1981** Thomas H. Hunter, M.D.
The Owen R. Cheatham Professor of Science,
Director, Program in Human Biology and Society
University of Virginia School of Medicine
- 1982** Walter J. McNerney, M.H.A.
Immediate Past President of the Blue Cross and
Blue Shield Association
Professor of Health Policy, Northwestern University
- 1983** Baruch S. Blumberg, M.D., Ph.D.
Nobel Laureate
Associate Director and Senior Member, Clinical
Research, Institute for Cancer Research,
Philadelphia, Pennsylvania
- 1984** Julius R. Krevans, M.D.
Chancellor, University of California at San Francisco
- James, A. Campbell, M.D. (1917-1983)
President, Rush-Presbyterian-St. Luke's Medical
Center (1969-1983)
- 1985** Eli Ginzberg, Ph.D.
The A. Barton Hepburn Professor Emeritus of
Economics, Columbia University
- David Elliott Rogers, M.D.
President, the Robert Wood Johnson Foundation
- Virginia V. Weldon, M.D.
Vice President, Washington University Medical
Center
- Edward N. Brandt, Jr., M.D., Ph.D.
Chancellor, University of Maryland, Baltimore
- 1986** Edward J. Stemmler, M.D.
Dean, University of Pennsylvania School of Medicine
- 1987** The 150th Anniversary Commencement
Honorable Dan Rostenkowski
Congressman, United States House of
Representatives
- Raymond C. Baumhart, S.J.
President, Loyola University of Chicago
- Arnold R. Weber, Ph.D.
President, Northwestern University
- Hanna Holborn Gray, Ph.D.
President, The University of Chicago
- Stanley O. Ikenberry, Ph.D.
President, The University of Illinois
- 1988** Samuel O. Thier, M.D.
President, The Institute of Medicine of the National
Academy of Sciences
- 1989** Leon M. Lederman, Ph.D.
Director, Fermi National Accelerator Laboratory
- Harold Byron Smith, Jr.
Trustee, Rush-Presbyterian-St. Luke's
Medical Center
- 1990** Louis W. Sullivan, M.D.
Secretary of Health and Human Services
- 1992** Stuart Harold Altman, Ph.D.
Dean, Florence Heller Graduate School
Brandeis University
- 1993** Margaret E. Mahoney
President, The Commonwealth Fund
- 1994** Steven A. Schroeder, M.D.
President, The Robert Wood Johnson Foundation
- 1995** J. Robert Buchanan, M.D.
General Director, *Emeritus*,
Massachusetts General Hospital
- 1996** Claire M. Fagin, Ph.D.
Leadership Professor and Dean, *Emeritus*
University of Pennsylvania, School of Nursing

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Medicine



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